# Beazer

**BEAZER EAST, INC.** C/O THREE RIVERS MANAGEMENT, INC.
ONE OXFORD CENTRE, SUITE 3000, PITTSBURGH, PA 15219-6401

June 3, 2010

Ms. Carolyn Bury
U.S. Environmental Protection Agency, Region V
77 West Jackson Boulevard
Mail Code DE-9J
Chicago, IL 60604-3590

Re: Former Koppers Wood-Treating Site – Carbondale, Illinois
March 2010 Investigation Analytical Data Submittal

Dear Ms. Bury:

In accordance with a scope of work that was approved by the USEPA on March 24, 2010 and finalized on March 25, 2010, Beazer conducted sampling in Evaluation Areas (EAs) 1, 2, 3, 4, 5 and 6 at the Former Koppers Wood-Treating Site in Carbondale, Illinois between March 29 and 31, 2010. The purpose of this letter is to transmit the validated analytical data associated with the March 2010 sampling to the USEPA. The following are attached to this letter:

- Attachment 1 – Validated Analytical Data Summary Table
- Attachment 2 – Sample Location Maps
- Attachment 3 – Data Validation Reports
- Attachment 4 – Validated Laboratory Data Sheets

Please feel contact me at 412-208-8867 if you have any questions or comments regarding this submittal.

Sincerely,

Michael Slenska, P.E.
Environmental Manager

Enclosure

cc: James Moore, IEPA
Allen Debus, USEPA
Jeffrey Holden, ARCADIS
Paul Anderson, ARCADIS
David Bessingpas, ARCADIS

ARCADIS

**Attachment 1**

Validated Analytical Data
Summary Table

**TABLE 1 - VALIDATED ANALTICAL DATA SUMMARY TABLE**

**FORMER KOPPERS WOOD-TREATING SITE - CARBONDALE, ILLINOIS**

| Sample ID: | | Current | | Proposed | | A1-35 | A1-36 | A1-37 | A1-38 | A1-39 |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth Interval (in.): | | USEPA PRGs | | USEPA PRGs | | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 |
| Date Collected: | Units | R | C/I | R | C/I | 03/30/10 | 03/30/10 | 03/30/10 | 03/30/10 | 03/30/10 |
| **PCDDs/PCDFs** | | | | | | | | | | |
| 1,2,3,4,6,7,8-HpCDD | ug/kg | -- | -- | -- | -- | 0.375 | 0.341 | 10.6 [15.4 EJ] | 0.225 | 2.51 |
| 1,2,3,4,6,7,8-HpCDF | ug/kg | -- | -- | -- | -- | 0.0423 | 0.0798 | 3.29 [5.4 EJ] | 0.0231 | 0.402 |
| 1,2,3,4,7,8,9-HpCDF | ug/kg | -- | -- | -- | -- | 0.00198 J | 0.00644 | 0.347 [0.558] | 0.00201 J | 0.0285 |
| 1,2,3,4,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.00518 | 0.00188 J | 0.0471 J [0.0668] | 0.00232 J | 0.0326 |
| 1,2,3,4,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00257 J | 0.00243 J | 0.0933 [0.137] | 0.00197 J | 0.0162 |
| 1,2,3,6,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.0113 | 0.0107 | 0.351 [0.542] | 0.00594 | 0.0749 |
| 1,2,3,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00118 J | 0.000971 UX | 0.0394 J [0.0364] | 0.000606 J | 0.00729 |
| 1,2,3,7,8,9-HxCDD | ug/kg | -- | -- | -- | -- | 0.00834 | 0.00379 J | 0.0669 [0.114] | 0.00357 J | 0.0519 |
| 1,2,3,7,8,9-HxCDF | ug/kg | -- | -- | -- | -- | 0.00149 U | 0.00087 U | 0.0152 U [0.0231] | 0.000757 U | 0.00324 J |
| 1,2,3,7,8-PeCDD | ug/kg | -- | -- | -- | -- | 0.00146 UX | 0.000697 UX | 0.0127 J [0.0165] | 0.00135 J | 0.0128 |
| 1,2,3,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.000705 UX | 0.000948 U | 0.00544 U [0.00287 J] | 0.00066 U | 0.00116 J |
| 2,3,4,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00168 UX | 0.00191 J | 0.0969 [0.128] | 0.0013 J | 0.0127 |
| 2,3,4,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.00169 J | 0.000844 U | 0.00611 UX [0.0101] | 0.0012 J | 0.0045 J |
| 2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.000607 U | 0.000593 J | 0.00212 UX [0.00191] | 0.000672 J | 0.00134 UX |
| 2,3,7,8-TCDF | ug/kg | -- | -- | -- | -- | 0.000831 UX | 0.000367 U | 0.00252 U [0.00144] | 0.000332 U | 0.000646 J |
| 37Cl-2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.13 | 0.138 | 1.68 [0.142] | 0.138 | 0.135 |
| OCDD | ug/kg | -- | -- | -- | -- | 12.5 EJ | 8.83 EJ | 86 [146 EJ] | 5.45 | 30.8 EJ |
| OCDF | ug/kg | -- | -- | -- | -- | 0.167 | 0.56 | 27.2 [41.3 EJ] | 0.111 | 1.96 |
| Total HpCDD | ug/kg | -- | -- | -- | -- | 0.843 | 0.659 | 20.5 [27.1 J] | 0.514 | 4.38 |
| Total HpCDF | ug/kg | -- | -- | -- | -- | 0.163 | 0.466 | 29.5 [52.2 J] | 0.122 | 1.78 |
| Total HxCDD | ug/kg | -- | -- | -- | -- | 0.124 | 0.0654 | 2.04 [2.87] | 0.115 | 0.468 |
| Total HxCDF | ug/kg | -- | -- | -- | -- | 0.0491 | 0.0821 | 4.97 [7.89 PJ] | 0.036 | 0.361 |
| Total PeCDD | ug/kg | -- | -- | -- | -- | 0.0208 | 0.0107 | 0.0506 [0.123] | 0.0144 | 0.0648 |
| Total PeCDF | ug/kg | -- | -- | -- | -- | 0.0119 | 0.004 | 0.178 [0.172 PJ] | 0.00603 | 0.0407 |
| Total TCDD | ug/kg | -- | -- | -- | -- | 0.0103 | 0.00267 | 0.0339 [0.0598] | 0.00788 | 0.0114 |
| Total TCDF | ug/kg | -- | -- | -- | -- | 0.0031 | 0.00076 | 0.0236 [0.0675] | 0.0038 | 0.0118 |
| 2,3,7,8-TCDD TEQ | ug/kg | 1 | 5-20 | 0.072 | 0.95 | 0.0114 | 0.00975 | 0.258 [0.396] | 0.00812 | 0.0734 |
| **SVOCs** | | | | | | | | | | |
| Pentachlorophenol | mg/kg | -- | -- | -- | -- | 0.048 U | 0.022 J | 8 DJ | 0.033 J | 0.26 |
| Acenaphthene | mg/kg | -- | -- | -- | -- | 0.003 J | 0.0042 J | 0.28 DJ | 0.019 J | 0.3 |
| Acenaphthylene | mg/kg | -- | -- | -- | -- | 0.019 | 0.023 | 6.4 DJ | 0.33 | 0.13 |
| Anthracene | mg/kg | -- | -- | -- | -- | 0.02 | 0.034 | 9.6 DJ | 0.42 | 0.2 |
| Benzo(a)anthracene | mg/kg | -- | -- | -- | -- | 0.032 | 0.046 | 31 DJ | 1.3 | 1 |
| Benzo(a)pyrene | mg/kg | -- | -- | -- | -- | 0.04 | 0.045 | 17 DJ | 1.1 | 0.29 |
| Benzo(b)fluoranthene | mg/kg | -- | -- | -- | -- | 0.073 | 0.13 | 52 DJY | 2.9 JY | 0.51 JY |
| Benzo(ghi)perylene | mg/kg | -- | -- | -- | -- | 0.036 | 0.048 | 14 DJ | 0.83 | 0.11 |
| Benzo(k)fluoranthene | mg/kg | -- | -- | -- | -- | 0.037 | 0.057 | 46 DJY | 2.7 JY | 0.46 JY |
| Chrysene | mg/kg | -- | -- | -- | -- | 0.056 | 0.074 | 37 DJ | 1.9 | 1.5 |
| Dibenzo(a,h)anthracene | mg/kg | -- | -- | -- | -- | 0.0094 J | 0.018 | 5.2 DJ | 0.24 | 0.12 |
| Fluoranthene | mg/kg | -- | -- | -- | -- | 0.047 | 0.056 | 85 DJ | 1.8 | 1.5 |
| Fluorene | mg/kg | -- | -- | -- | -- | 0.0097 U | 0.003 J | 0.59 DJ | 0.031 | 0.04 U |
| Indeno(1,2,3-cd)pyrene | mg/kg | -- | -- | -- | -- | 0.032 | 0.053 | 14 DJ | 0.8 | 0.077 |
| Naphthalene | mg/kg | -- | -- | -- | -- | 0.0077 J | 0.0072 J | 0.84 DJ | 0.044 | 0.19 |
| Phenanthrene | mg/kg | -- | -- | -- | -- | 0.029 | 0.027 | 12 DJ | 0.22 | 3.7 |
| Pyrene | mg/kg | -- | -- | -- | -- | 0.04 | 0.053 | 58 DJ | 1.8 | 0.78 |
| Total PAHs | mg/kg | -- | -- | -- | -- | 0.481 J | 0.678 J | 343 DJ | 13.7 J | 10.4 |
| **Metals** | | | | | | | | | | |
| Arsenic | mg/kg | -- | -- | -- | -- | 10.5 | 13.5 | 9 | 9.3 | 5.2 |
| Chromium | mg/kg | -- | -- | -- | -- | 15.5 J | 19.4 J | 15.3 J | 15.8 J | 11.9 J |
| Copper | mg/kg | -- | -- | -- | -- | 18.4 | 21.3 | 17.6 | 19 | 12.5 |
| **Miscellaneous** | | | | | | | | | | |
| Total Organic Carbon | mg/kg | -- | -- | -- | -- | NA | NA | NA | NA | NA |

**See notes on Page 12.**

**TABLE 1 - VALIDATED ANALTICAL DATA SUMMARY TABLE**

**FORMER KOPPERS WOOD-TREATING SITE - CARBONDALE, ILLINOIS**

| Sample ID: | | Current USEPA PRGs | | Proposed USEPA PRGs | | A1-40 | A1-41 | A1-42 | A1-43 | A1-44 |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth Interval (in.): | | | | | | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 |
| Date Collected: | Units | R | C/I | R | C/I | 03/30/10 | 03/30/10 | 03/30/10 | 03/30/10 | 03/30/10 |
| **PCDDs/PCDFs** | | | | | | | | | | |
| 1,2,3,4,6,7,8-HpCDD | ug/kg | -- | -- | -- | -- | 0.207 | 2.14 | 0.16 | 0.0791 | 0.67 |
| 1,2,3,4,6,7,8-HpCDF | ug/kg | -- | -- | -- | -- | 0.0318 | 0.546 | 0.016 | 0.00572 | 0.13 |
| 1,2,3,4,7,8,9-HpCDF | ug/kg | -- | -- | -- | -- | 0.00206 J | 0.0225 | 0.000888 UX | 0.000887 U | 0.0148 |
| 1,2,3,4,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.00442 U | 0.0347 | 0.00189 UX | 0.00189 U | 0.00646 |
| 1,2,3,4,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00197 U | 0.0138 | 0.0012 J | 0.0008 U | 0.0285 |
| 1,2,3,6,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.00509 | 0.0313 | 0.00418 J | 0.00255 U | 0.0242 |
| 1,2,3,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00177 U | 0.0171 | 0.00103 U | 0.000404 U | 0.00722 |
| 1,2,3,7,8,9-HxCDD | ug/kg | -- | -- | -- | -- | 0.00475 U | 0.073 | 0.00348 J | 0.00189 U | 0.0112 |
| 1,2,3,7,8,9-HxCDF | ug/kg | -- | -- | -- | -- | 0.00138 U | 0.00226 J | 0.000783 U | 0.000685 U | 0.00774 |
| 1,2,3,7,8-PeCDD | ug/kg | -- | -- | -- | -- | 0.0029 UX | 0.0133 | 0.000882 UX | 0.000664 U | 0.00304 J |
| 1,2,3,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.000547 U | 0.00108 UX | 0.00084 U | 0.000637 U | 0.00227 J |
| 2,3,4,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00188 U | 0.027 | 0.00114 J | 0.000498 U | 0.0123 |
| 2,3,4,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.000633 J | 0.00435 J | 0.000778 UX | 0.000619 U | 0.0149 |
| 2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.00805 | 0.000742 J | 0.000316 UX | 0.000334 UX | 0.00049 U |
| 2,3,7,8-TCDF | ug/kg | -- | -- | -- | -- | 0.000478 UX | 0.000798 U | 0.000622 U | 0.00049 U | 0.000589 J |
| 37Cl-2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.139 | 0.132 | 0.139 | 0.125 | 0.133 |
| OCDD | ug/kg | -- | -- | -- | -- | 6.43 | 28.3 EJ | 9.28 EJ | 4 | 10.3 EJ |
| OCDF | ug/kg | -- | -- | -- | -- | 0.168 | 1.14 | 0.0588 | 0.0217 | 0.596 |
| Total HpCDD | ug/kg | -- | -- | -- | -- | 0.521 | 3.97 | 0.378 | 0.238 | 1.68 |
| Total HpCDF | ug/kg | -- | -- | -- | -- | 0.149 | 1.5 | 0.0563 | 0.0227 | 0.666 |
| Total HxCDD | ug/kg | -- | -- | -- | -- | 0.117 | 0.563 | 0.0468 | 0.023 | 0.205 |
| Total HxCDF | ug/kg | -- | -- | -- | -- | 0.0301 | 0.521 | 0.0163 | 0.00445 | 0.255 |
| Total PeCDD | ug/kg | -- | -- | -- | -- | 0.0649 | 0.0614 | 0.00657 | 0.00234 UX | 0.0307 |
| Total PeCDF | ug/kg | -- | -- | -- | -- | 0.00569 | 0.0926 | 0.0042 | 0.000446 UX | 0.0806 |
| Total TCDD | ug/kg | -- | -- | -- | -- | 0.022 | 0.000742 | 0.0027 | 0.000334 UX | 0.00479 |
| Total TCDF | ug/kg | -- | -- | -- | -- | 0.00398 | 0.012 | 0.00322 | 0.00049 U | 0.00731 |
| 2,3,7,8-TCDD TEQ | ug/kg | 1 | 5-20 | 0.072 | 0.95 | 0.0131 | 0.0712 | 0.00556 | 0.00205 | 0.0288 |
| **SVOCs** | | | | | | | | | | |
| Pentachlorophenol | mg/kg | -- | -- | -- | -- | 0.023 J | 0.79 UJ | 0.093 U | 0.2 U | 0.021 J [0.04 J] |
| Acenaphthene | mg/kg | -- | -- | -- | -- | 0.0098 J | 0.9 DJ | 0.019 U | 0.0083 J | 0.0097 J [0.0069 J] |
| Acenaphthylene | mg/kg | -- | -- | -- | -- | 0.15 | 0.056 DJ | 0.0039 J | 0.016 J | 0.062 [0.067] |
| Anthracene | mg/kg | -- | -- | -- | -- | 0.15 | 1.8 DJ | 0.0045 J | 0.013 J | 0.11 [0.087] |
| Benzo(a)anthracene | mg/kg | -- | -- | -- | -- | 0.4 | 6.4 DJ | 0.011 J | 0.029 J | 0.24 [0.17] |
| Benzo(a)pyrene | mg/kg | -- | -- | -- | -- | 0.3 | 6.4 DJ | 0.0096 J | 0.027 J | 0.17 [0.16] |
| Benzo(b)fluoranthene | mg/kg | -- | -- | -- | -- | 0.56 | 7.5 DJ | 0.019 | 0.071 | 0.31 [0.29] |
| Benzo(ghi)perylene | mg/kg | -- | -- | -- | -- | 0.2 | 4.8 DJ | 0.0079 J | 0.028 J | 0.12 [0.14] |
| Benzo(k)fluoranthene | mg/kg | -- | -- | -- | -- | 0.56 | 4.9 DJ | 0.0079 J | 0.035 J | 0.14 [0.18] |
| Chrysene | mg/kg | -- | -- | -- | -- | 0.56 | 7.2 DJ | 0.012 J | 0.063 | 0.28 [0.24] |
| Dibenzo(a,h)anthracene | mg/kg | -- | -- | -- | -- | 0.07 | 1.1 DJ | 0.019 U | 0.041 U | 0.041 [0.046] |
| Fluoranthene | mg/kg | -- | -- | -- | -- | 0.75 | 25 DJ | 0.019 | 0.26 | 0.63 [0.39] |
| Fluorene | mg/kg | -- | -- | -- | -- | 0.018 J | 0.52 DJ | 0.003 J | 0.0097 J | 0.0086 J [0.0086 J] |
| Indeno(1,2,3-cd)pyrene | mg/kg | -- | -- | -- | -- | 0.2 | 4.4 DJ | 0.0089 J | 0.026 J | 0.12 [0.14] |
| Naphthalene | mg/kg | -- | -- | -- | -- | 0.034 | 0.12 DJ | 0.0025 J | 0.041 U | 0.12 [0.086] |
| Phenanthrene | mg/kg | -- | -- | -- | -- | 0.094 | 12 DJ | 0.015 J | 0.21 | 0.48 [0.23] |
| Pyrene | mg/kg | -- | -- | -- | -- | 0.6 | 13 DJ | 0.013 J | 0.12 J | 0.38 [0.26] |
| Total PAHs | mg/kg | -- | -- | -- | -- | 4.66 J | 96.1 J | 0.137 J | 0.916 J | 3.22 J [2.5 J] |
| **Metals** | | | | | | | | | | |
| Arsenic | mg/kg | -- | -- | -- | -- | 10.3 | 11.5 | 8.7 | 14.8 | 11.6 [14.1] |
| Chromium | mg/kg | -- | -- | -- | -- | 17.8 | 19.6 | 17.1 | 21.9 | 18.6 [14.5] |
| Copper | mg/kg | -- | -- | -- | -- | 40.1 | 17 | 17.9 | 20.9 | 12.5 [12.2] |
| **Miscellaneous** | | | | | | | | | | |
| Total Organic Carbon | mg/kg | -- | -- | -- | -- | NA | NA | NA | 8,960 | 24,300 [17,400] |

**See notes on Page 12.**

**TABLE 1 - VALIDATED ANALTICAL DATA SUMMARY TABLE**

**FORMER KOPPERS WOOD-TREATING SITE - CARBONDALE, ILLINOIS**

| Sample ID: | | Current | | Proposed | | A1-45 | A1-46 | A1-47 | A1-48 | A2-11 | A2-12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth Interval (in.): | | USEPA PRGs | | USEPA PRGs | | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 |
| Date Collected: | Units | R | C/I | R | C/I | 03/30/10 | 03/30/10 | 03/30/10 | 03/30/10 | 03/29/10 | 03/29/10 |
| **PCDDs/PCDFs** | | | | | | | | | | | |
| 1,2,3,4,6,7,8-HpCDD | ug/kg | -- | -- | -- | -- | 0.0552 | 0.0836 | 0.226 | 6.13 EJ | 111 D | 148 EJ |
| 1,2,3,4,6,7,8-HpCDF | ug/kg | -- | -- | -- | -- | 0.00536 | 0.00981 | 0.067 | 0.98 | 12.1 EJ | 24.7 EJ |
| 1,2,3,4,7,8,9-HpCDF | ug/kg | -- | -- | -- | -- | 0.000801 U | 0.00128 U | 0.00848 | 0.0878 | 0.968 | 2 |
| 1,2,3,4,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.00154 U | 0.00396 U | 0.00166 UX | 0.0078 | 0.805 | 1.28 |
| 1,2,3,4,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.000751 J | 0.00175 J | 0.0325 | 0.222 | 0.675 | 1.27 |
| 1,2,3,6,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.00184 U | 0.00381 U | 0.00938 | 0.11 J | 2.01 | 3.98 |
| 1,2,3,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.000554 U | 0.000673 U | 0.00726 | 0.0407 | 0.154 | 0.289 PJ |
| 1,2,3,7,8,9-HxCDD | ug/kg | -- | -- | -- | -- | 0.000943 J | 0.00421 U | 0.00339 U | 0.0205 | 0.68 | 1.08 |
| 1,2,3,7,8,9-HxCDF | ug/kg | -- | -- | -- | -- | 0.000892 U | 0.00102 U | 0.00932 | 0.0463 | 0.159 | 0.255 |
| 1,2,3,7,8-PeCDD | ug/kg | -- | -- | -- | -- | 0.000967 U | 0.000984 U | 0.0012 U | 0.00263 J | 0.114 | 0.173 |
| 1,2,3,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.000719 U | 0.00116 U | 0.00218 J | 0.0096 J | 0.0378 | 0.0491 |
| 2,3,4,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.000719 U | 0.00146 U | 0.00982 | 0.0535 | 0.311 | 0.606 |
| 2,3,4,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.000676 U | 0.0013 J | 0.0286 | 0.0969 J | 0.221 | 0.302 |
| 2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.000676 UX | 0.00061 U | 0.000425 U | 0.000476 U | 0.00963 | 0.00988 |
| 2,3,7,8-TCDF | ug/kg | -- | -- | -- | -- | 0.000477 U | 0.000488 U | 0.000716 UX | 0.00191 | 0.00919 | 0.00877 |
| 37Cl-2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.134 | 0.139 | 0.132 | 0.135 | 0.158 | 0.151 |
| OCDD | ug/kg | -- | -- | -- | -- | 7.63 | 4.37 | 4.97 | 89.1 EDJ | 573 EDJ | 627 EDJ |
| OCDF | ug/kg | -- | -- | -- | -- | 0.0207 | 0.0356 | 0.263 | 5.62 | 61.3 EJ | 119 EJ |
| Total HpCDD | ug/kg | -- | -- | -- | -- | 0.123 | 0.185 | 0.472 | 12.3 J | 279 D | 355 J |
| Total HpCDF | ug/kg | -- | -- | -- | -- | 0.0208 | 0.0346 | 0.324 | 5.98 | 73.1 J | 141 J |
| Total HxCDD | ug/kg | -- | -- | -- | -- | 0.0118 | 0.0182 | 0.0506 | 0.496 J | 25.6 | 43.8 |
| Total HxCDF | ug/kg | -- | -- | -- | -- | 0.000751 | 0.013 | 0.202 | 1.56 J | 17.2 PJ | 33.2 PJ |
| Total PeCDD | ug/kg | -- | -- | -- | -- | 0.00228 | 0.00126 U | 0.00179 | 0.0141 | 2.82 | 3.35 |
| Total PeCDF | ug/kg | -- | -- | -- | -- | 0.000762 | 0.0013 | 0.1 | 0.422 J | 1.46 PJ | 2.18 PJ |
| Total TCDD | ug/kg | -- | -- | -- | -- | 0.000676 UX | 0.000792 U | 0.000282 UX | 0.00225 | 0.482 | 0.4 |
| Total TCDF | ug/kg | -- | -- | -- | -- | 0.000841 | 0.000639 UX | 0.00859 | 0.0238 | 0.15 PJ | 0.204 PJ |
| 2,3,7,8-TCDD TEQ | ug/kg | 1 | 5-20 | 0.072 | 0.95 | 0.00307 | 0.00282 | 0.0201 | 0.183 | 2.1 | 3.12 |
| **SVOCs** | | | | | | | | | | | |
| Pentachlorophenol | mg/kg | -- | -- | -- | -- | 0.046 U | 0.11 U | 0.022 J | 0.13 U | 3.1 | 14 DJ |
| Acenaphthene | mg/kg | -- | -- | -- | -- | 0.0092 U | 0.0022 J | 0.0033 J | 0.0071 J | 0.093 J | 0.35 DJ |
| Acenaphthylene | mg/kg | -- | -- | -- | -- | 0.0028 J | 0.015 J | 0.036 | 0.018 J | 1.6 | 8.9 DJ |
| Anthracene | mg/kg | -- | -- | -- | -- | 0.0034 J | 0.017 J | 0.043 | 0.03 | 1.9 | 11 DJ |
| Benzo(a)anthracene | mg/kg | -- | -- | -- | -- | 0.009 J | 0.039 | 0.09 J | 0.089 | 3.1 | 19 DJ |
| Benzo(a)pyrene | mg/kg | -- | -- | -- | -- | 0.008 J | 0.045 J | 0.091 J | 0.089 | 4.2 | 28 DJ |
| Benzo(b)fluoranthene | mg/kg | -- | -- | -- | -- | 0.013 | 0.076 J | 0.16 J | 0.15 | 9.7 JY | 47 DJ |
| Benzo(ghi)perylene | mg/kg | -- | -- | -- | -- | 0.006 J | 0.035 J | 0.069 J | 0.082 | 3.4 | 21 DJ |
| Benzo(k)fluoranthene | mg/kg | -- | -- | -- | -- | 0.006 J | 0.026 J | 0.072 J | 0.046 | 8.8 JY | 22 DJ |
| Chrysene | mg/kg | -- | -- | -- | -- | 0.015 | 0.055 | 0.12 J | 0.11 | 4.3 | 28 DJ |
| Dibenzo(a,h)anthracene | mg/kg | -- | -- | -- | -- | 0.0092 U | 0.0082 J | 0.023 J | 0.021 J | 1 | 6.8 DJ |
| Fluoranthene | mg/kg | -- | -- | -- | -- | 0.023 | 0.073 | 0.16 | 0.2 | 4.1 | 14 DJ |
| Fluorene | mg/kg | -- | -- | -- | -- | 0.0092 U | 0.0034 J | 0.0057 J | 0.0058 J | 0.11 | 0.37 DJ |
| Indeno(1,2,3-cd)pyrene | mg/kg | -- | -- | -- | -- | 0.0061 J | 0.034 J | 0.072 J | 0.076 | 3.3 | 21 DJ |
| Naphthalene | mg/kg | -- | -- | -- | -- | 0.008 J | 0.01 J | 0.049 | 0.02 J | 0.18 | 0.91 DJ |
| Phenanthrene | mg/kg | -- | -- | -- | -- | 0.0097 | 0.031 | 0.1 | 0.1 | 0.54 | 1.6 DJ |
| Pyrene | mg/kg | -- | -- | -- | -- | 0.016 | 0.056 | 0.12 J | 0.13 | 4.5 | 19 DJ |
| Total PAHs | mg/kg | -- | -- | -- | -- | 0.126 J | 0.526 J | 1.21 J | 1.17 J | 42 J | 249 J |
| **Metals** | | | | | | | | | | | |
| Arsenic | mg/kg | -- | -- | -- | -- | 12 | 6.5 | 17.6 | 8.4 | 21.2 | 44.3 |
| Chromium | mg/kg | -- | -- | -- | -- | 20.7 | 20.1 | 18.8 | 18.5 | 48.9 J | 118 J |
| Copper | mg/kg | -- | -- | -- | -- | 23.4 | 18.6 | 22.8 | 23.8 | 26.8 | 32.6 |
| **Miscellaneous** | | | | | | | | | | | |
| Total Organic Carbon | mg/kg | -- | -- | -- | -- | NA | 23,600 | 13,700 | 9,500 | 21,700 | 20,800 |

**See notes on Page 12.**

**TABLE 1 - VALIDATED ANALTICAL DATA SUMMARY TABLE**

**FORMER KOPPERS WOOD-TREATING SITE - CARBONDALE, ILLINOIS**

| Sample ID: | | Current | | Proposed | | A2-13 | A2-14 | A2-15 | A2-16 | A2-17 |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth Interval (in.): | | USEPA PRGs | | USEPA PRGs | | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 |
| Date Collected: | Units | R | C/I | R | C/I | 03/29/10 | 03/29/10 | 03/29/10 | 03/29/10 | 03/29/10 |
| **PCDDs/PCDFs** | | | | | | | | | | |
| 1,2,3,4,6,7,8-HpCDD | ug/kg | -- | -- | -- | -- | 1 [2.57] | 296 EJ | 79.8 EDJ | 252 EJ | 181 EDJ |
| 1,2,3,4,6,7,8-HpCDF | ug/kg | -- | -- | -- | -- | 0.251 [0.611] | 31.6 | 10.5 EJ | 27.9 | 22.2 |
| 1,2,3,4,7,8,9-HpCDF | ug/kg | -- | -- | -- | -- | 0.0164 [0.0395] | 2.58 | 1.2 | 2.47 | 1.67 |
| 1,2,3,4,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.0132 [0.03] | 1.43 | 0.152 | 1.09 | 0.718 |
| 1,2,3,4,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00839 [0.0218] | 0.871 | 0.733 | 1.73 | 0.961 |
| 1,2,3,6,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.029 [0.0726] | 6.33 | 1.82 | 4.62 | 3.92 |
| 1,2,3,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00332 J [0.00842] | 0.241 | 0.136 | 0.352 | 0.242 |
| 1,2,3,7,8,9-HxCDD | ug/kg | -- | -- | -- | -- | 0.0125 [0.0308] | 2.3 | 0.355 | 1.17 | 1.04 |
| 1,2,3,7,8,9-HxCDF | ug/kg | -- | -- | -- | -- | 0.00188 J [0.0048 J] | 0.142 | 0.155 | 0.355 | 0.198 |
| 1,2,3,7,8-PeCDD | ug/kg | -- | -- | -- | -- | 0.00363 J [0.00755] | 0.237 | 0.0481 | 0.133 | 0.137 |
| 1,2,3,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.00085 UX [0.00292 J] | 0.0256 J | 0.0257 | 0.0624 | 0.0354 J |
| 2,3,4,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00683 [0.0161] | 0.646 | 0.281 | 0.653 | 0.482 |
| 2,3,4,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.00287 J [0.00715] | 0.104 | 0.153 | 0.332 | 0.203 |
| 2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.00048 J [0.000768 J] | 0.016 | 0.0032 | 0.00664 U | 0.00944 J |
| 2,3,7,8-TCDF | ug/kg | -- | -- | -- | -- | 0.00123 [0.00226] | 0.00691 U | 0.00564 | 0.00752 UX | 0.01 U |
| 37Cl-2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.139 [0.135] | 1.48 | 0.141 | 1.64 | 1.63 |
| OCDD | ug/kg | -- | -- | -- | -- | 13.5 EJ [35.1 EJ] | 4,850 EDJ | 537 EDJ | 3,270 EDJ | 2,630 EDJ |
| OCDF | ug/kg | -- | -- | -- | -- | 1.35 [3.19] | 202 EJ | 61.5 D | 158 EJ | 130 EJ |
| Total HpCDD | ug/kg | -- | -- | -- | -- | 2.02 [5.64] | 570 J | 235 DJ | 757 J | 368 J |
| Total HpCDF | ug/kg | -- | -- | -- | -- | 1.26 [3.37] | 248 | 72.7 J | 222 | 162 |
| Total HxCDD | ug/kg | -- | -- | -- | -- | 0.28 [0.778] | 34.4 | 17.1 | 52.2 | 22.5 |
| Total HxCDF | ug/kg | -- | -- | -- | -- | 0.262 [0.729] | 38.4 PJ | 15.8 PJ | 40.3 PJ | 24.5 PJ |
| Total PeCDD | ug/kg | -- | -- | -- | -- | 0.108 [0.207] | 1.18 | 0.318 | 1.71 | 0.906 |
| Total PeCDF | ug/kg | -- | -- | -- | -- | 0.0315 [0.085] | 1.26 PJ | 0.983 PJ | 2.21 | 1.45 |
| Total TCDD | ug/kg | -- | -- | -- | -- | 0.0926 [0.119] | 0.118 | 0.035 | 0.139 | 0.122 |
| Total TCDF | ug/kg | -- | -- | -- | -- | 0.0233 [0.0478] | 0.159 | 0.0758 PJ | 0.167 | 0.0938 |
| 2,3,7,8-TCDD TEQ | ug/kg | 1 | 5-20 | 0.072 | 0.95 | 0.0297 [0.0729] | 6.3 | 1.56 | 5.08 | 3.84 |
| **SVOCs** | | | | | | | | | | |
| Pentachlorophenol | mg/kg | -- | -- | -- | -- | 0.078 J [0.061 J] | 71 DJ | 21 DJ | 27 DJ | 40 DJ |
| Acenaphthene | mg/kg | -- | -- | -- | -- | 0.0064 J [0.033] | 0.26 DJ | 0.96 DJ | 0.69 DJ | 0.47 DJ |
| Acenaphthylene | mg/kg | -- | -- | -- | -- | 0.081 J [0.28 J] | 6.1 DJ | 17 DJ | 15 DJ | 7.8 DJ |
| Anthracene | mg/kg | -- | -- | -- | -- | 0.091 [0.17 J] | 8.4 DJ | 24 DJ | 27 DJ | 12 DJ |
| Benzo(a)anthracene | mg/kg | -- | -- | -- | -- | 0.14 J [0.44 J] | 17 DJ | 20 DJ | 16 DJ | 12 DJ |
| Benzo(a)pyrene | mg/kg | -- | -- | -- | -- | 0.18 J [0.57 J] | 16 DJ | 39 DJ | 28 DJ | 15 DJ |
| Benzo(b)fluoranthene | mg/kg | -- | -- | -- | -- | 0.4 JY [0.72] | 38 DJ | 91 DJY | 79 DJY | 41 DJY |
| Benzo(ghi)perylene | mg/kg | -- | -- | -- | -- | 0.15 J [0.49 J] | 12 DJ | 34 DJ | 29 DJ | 15 DJ |
| Benzo(k)fluoranthene | mg/kg | -- | -- | -- | -- | 0.37 JY [0.28] | 18 DJ | 83 DJY | 72 DJY | 37 DJY |
| Chrysene | mg/kg | -- | -- | -- | -- | 0.22 [0.62] | 24 DJ | 27 DJ | 23 DJ | 16 DJ |
| Dibenzo(a,h)anthracene | mg/kg | -- | -- | -- | -- | 0.044 [0.1] | 4.9 DJ | 13 DJ | 8.7 DJ | 4.8 DJ |
| Fluoranthene | mg/kg | -- | -- | -- | -- | 0.26 J [1.4 J] | 18 DJ | 23 DJ | 16 DJ | 19 DJ |
| Fluorene | mg/kg | -- | -- | -- | -- | 0.019 UJ [0.081 J] | 0.39 DJ | 1.4 DJ | 1.2 DJ | 0.61 DJ |
| Indeno(1,2,3-cd)pyrene | mg/kg | -- | -- | -- | -- | 0.13 J [0.4 J] | 13 DJ | 36 DJ | 30 DJ | 15 DJ |
| Naphthalene | mg/kg | -- | -- | -- | -- | 0.02 J [0.16 J] | 0.94 DJ | 2.3 DJ | 2 DJ | 1.4 DJ |
| Phenanthrene | mg/kg | -- | -- | -- | -- | 0.086 J [1.2 J] | 2.9 DJ | 4.1 DJ | 3.1 DJ | 2.8 DJ |
| Pyrene | mg/kg | -- | -- | -- | -- | 0.23 J [1.1 J] | 23 DJ | 23 DJ | 18 DJ | 19 DJ |
| Total PAHs | mg/kg | -- | -- | -- | -- | 2.04 J [8.04] | 203 J | 356 | 297 | 219 J |
| **Metals** | | | | | | | | | | |
| Arsenic | mg/kg | -- | -- | -- | -- | 12.1 [12.6] | 14.8 | 63.8 | 44.4 | 25.2 |
| Chromium | mg/kg | -- | -- | -- | -- | 17.1 [19.2 J] | 32.9 J | 138 J | 155 J | 78.3 J |
| Copper | mg/kg | -- | -- | -- | -- | 45.8 J [65] | 19.9 | 36.8 | 41.3 | 27.2 |
| **Miscellaneous** | | | | | | | | | | |
| Total Organic Carbon | mg/kg | -- | -- | -- | -- | NA | NA | NA | NA | NA |

**See notes on Page 12.**

**TABLE 1 - VALIDATED ANALTICAL DATA SUMMARY TABLE**

**FORMER KOPPERS WOOD-TREATING SITE - CARBONDALE, ILLINOIS**

| Sample ID: | | Current | | Proposed | | A2-18 | A2-19 | A3-18 | A3-19 |
|---|---|---|---|---|---|---|---|---|---|
| Depth Interval (in.): | | USEPA PRGs | | USEPA PRGs | | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 |
| Date Collected: | Units | R | C/I | R | C/I | 03/29/10 | 03/29/10 | 03/30/10 | 03/30/10 |
| **PCDDs/PCDFs** | | | | | | | | | |
| 1,2,3,4,6,7,8-HpCDD | ug/kg | -- | -- | -- | -- | 37 | 262 EDJ | 0.111 | 2 |
| 1,2,3,4,6,7,8-HpCDF | ug/kg | -- | -- | -- | -- | 4.58 | 38.1 EJ | 0.0134 | 0.435 |
| 1,2,3,4,7,8,9-HpCDF | ug/kg | -- | -- | -- | -- | 0.44 | 3.21 | 0.00138 U | 0.0386 |
| 1,2,3,4,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.182 | 2 | 0.00141 J | 0.0199 |
| 1,2,3,4,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.994 | 1.56 | 0.000955 J | 0.0361 |
| 1,2,3,6,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.89 | 6.97 EJ | 0.00269 UX | 0.0591 |
| 1,2,3,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.192 | 0.366 | 0.000821 U | 0.0137 |
| 1,2,3,7,8,9-HxCDD | ug/kg | -- | -- | -- | -- | 0.296 | 2.11 | 0.00363 U | 0.0307 |
| 1,2,3,7,8,9-HxCDF | ug/kg | -- | -- | -- | -- | 0.218 | 0.295 | 0.00134 U | 0.0105 |
| 1,2,3,7,8-PeCDD | ug/kg | -- | -- | -- | -- | 0.0483 UX | 0.244 | 0.00123 U | 0.00866 |
| 1,2,3,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.0502 J | 0.0623 | 0.000851 U | 0.00245 UX |
| 2,3,4,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.278 | 0.929 | 0.000968 U | 0.024 |
| 2,3,4,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.393 | 0.303 | 0.000863 J | 0.0203 |
| 2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.00757 J | 0.0136 | 0.000651 U | 0.000854 UX |
| 2,3,7,8-TCDF | ug/kg | -- | -- | -- | -- | 0.00935 J | 0.011 | 0.00046 U | 0.00119 |
| 37Cl-2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 1.76 | 0.205 | 0.139 | 0.138 |
| OCDD | ug/kg | -- | -- | -- | -- | 583 EJ | 709 EDJ | 4.2 | 23.8 EJ |
| OCDF | ug/kg | -- | -- | -- | -- | 25.1 | 186 EJ | 0.0708 | 2.08 |
| Total HpCDD | ug/kg | -- | -- | -- | -- | 88 | 620 DJ | 0.26 | 4.67 |
| Total HpCDF | ug/kg | -- | -- | -- | -- | 28.6 | 210 J | 0.068 | 2.29 |
| Total HxCDD | ug/kg | -- | -- | -- | -- | 6.4 | 60.1 J | 0.0173 | 0.52 |
| Total HxCDF | ug/kg | -- | -- | -- | -- | 8.29 | 50.3 PJ | 0.0168 | 0.68 |
| Total PeCDD | ug/kg | -- | -- | -- | -- | 0.323 | 3.43 | 0.00111 | 0.0671 |
| Total PeCDF | ug/kg | -- | -- | -- | -- | 1.78 | 2.59 PJ | 0.00193 | 0.144 |
| Total TCDD | ug/kg | -- | -- | -- | -- | 0.118 | 0.385 | 0.000872 | 0.0122 |
| Total TCDF | ug/kg | -- | -- | -- | -- | 0.0437 | 0.264 PJ | 0.000365 UX | 0.0276 |
| 2,3,7,8-TCDD TEQ | ug/kg | 1 | 5-20 | 0.072 | 0.95 | 1.04 | 5.08 | 0.00302 | 0.0668 |
| **SVOCs** | | | | | | | | | |
| Pentachlorophenol | mg/kg | -- | -- | -- | -- | 2.3 | 22 DJ [20 DJ] | 0.044 U | 0.067 J |
| Acenaphthene | mg/kg | -- | -- | -- | -- | 0.051 | 0.57 DJ [0.57 DJ] | 0.0013 J | 0.0078 J |
| Acenaphthylene | mg/kg | -- | -- | -- | -- | 1.3 | 8.9 DJ [9.2 DJ] | 0.0047 J | 0.12 |
| Anthracene | mg/kg | -- | -- | -- | -- | 1.4 | 32 DJ [26 DJ] | 0.0058 J | 0.17 |
| Benzo(a)anthracene | mg/kg | -- | -- | -- | -- | 2.8 | 8 DJ [7.6 DJ] | 0.011 | 0.16 |
| Benzo(a)pyrene | mg/kg | -- | -- | -- | -- | 3.2 | 17 DJ [17 DJ] | 0.012 | 0.15 J |
| Benzo(b)fluoranthene | mg/kg | -- | -- | -- | -- | 6 | 35 DJ [43 DJY] | 0.022 | 0.29 J |
| Benzo(ghi)perylene | mg/kg | -- | -- | -- | -- | 2.7 | 15 DJ [16 DJ] | 0.014 | 0.18 J |
| Benzo(k)fluoranthene | mg/kg | -- | -- | -- | -- | 2.6 | 13 DJ [39 DJY] | 0.0074 J | 0.1 J |
| Chrysene | mg/kg | -- | -- | -- | -- | 4.4 | 21 DJ [17 DJ] | 0.013 | 0.18 |
| Dibenzo(a,h)anthracene | mg/kg | -- | -- | -- | -- | 0.96 | 5.7 DJ [5.1 DJ] | 0.0031 J | 0.056 J |
| Fluoranthene | mg/kg | -- | -- | -- | -- | 4.2 | 11 DJ [11 DJ] | 0.022 | 0.21 |
| Fluorene | mg/kg | -- | -- | -- | -- | 0.081 | 3.1 DJ [1.5 DJ] | 0.0016 J | 0.013 J |
| Indeno(1,2,3-cd)pyrene | mg/kg | -- | -- | -- | -- | 2.7 | 16 DJ [16 DJ] | 0.012 | 0.19 J |
| Naphthalene | mg/kg | -- | -- | -- | -- | 0.1 | 1.2 DJ [1.1 DJ] | 0.0016 J | 0.0093 J |
| Phenanthrene | mg/kg | -- | -- | -- | -- | 0.55 | 6 DJ [3 DJ] | 0.0093 | 0.046 |
| Pyrene | mg/kg | -- | -- | -- | -- | 4.1 | 11 DJ [11 DJ] | 0.016 | 0.19 |
| Total PAHs | mg/kg | -- | -- | -- | -- | 37.1 | 204 [185] | 0.157 J | 2.07 J |
| **Metals** | | | | | | | | | |
| Arsenic | mg/kg | -- | -- | -- | -- | 13.8 | 50.4 [35.8] | 6 | 14.2 |
| Chromium | mg/kg | -- | -- | -- | -- | 42.4 J | 154 J [153 J] | 18.1 | 22.5 |
| Copper | mg/kg | -- | -- | -- | -- | 34 | 39 [42.1] | 17.4 | 22.9 |
| **Miscellaneous** | | | | | | | | | |
| Total Organic Carbon | mg/kg | -- | -- | -- | -- | NA | 31,600 [35,000] | 5,470 | 16,400 |

**See notes on Page 12.**

**TABLE 1 - VALIDATED ANALTICAL DATA SUMMARY TABLE**

**FORMER KOPPERS WOOD-TREATING SITE - CARBONDALE, ILLINOIS**

| Sample ID: | | Current | | Proposed | | A3-20 | A3-21 | A3-22 | A3-23 | A3-24 | A4-1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth Interval (in.): | | USEPA PRGs | | USEPA PRGs | | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 |
| Date Collected: | Units | R | C/I | R | C/I | 03/30/10 | 03/30/10 | 03/30/10 | 03/30/10 | 03/30/10 | 03/31/10 |
| **PCDDs/PCDFs** | | | | | | | | | | | |
| 1,2,3,4,6,7,8-HpCDD | ug/kg | -- | -- | -- | -- | 4.15 EJ [4.43 EJ] | 160 EDJ | 105 EDJ | 17.2 EJ | 117 EDJ | 0.248 |
| 1,2,3,4,6,7,8-HpCDF | ug/kg | -- | -- | -- | -- | 0.815 [0.925] | 40.6 EJ | 23.7 EJ | 4.51 EJ | 26.8 EJ | 0.0237 |
| 1,2,3,4,7,8,9-HpCDF | ug/kg | -- | -- | -- | -- | 0.0607 [0.0672] | 3.29 | 1.77 | 0.46 | 2.71 | 0.00237 J |
| 1,2,3,4,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.0377 [0.0408] | 1.36 | 0.78 | 0.165 | 1.16 | 0.00332 J |
| 1,2,3,4,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.0465 [0.0542] | 2.58 | 1.82 | 1.02 | 7.74 EJ | 0.00201 J |
| 1,2,3,6,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.118 [0.133] | 4.96 EJ | 2.58 | 0.536 | 3.88 | 0.00692 |
| 1,2,3,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.0223 [0.0233] | 0.759 | 0.545 | 0.227 | 1.73 | 0.00174 J |
| 1,2,3,7,8,9-HxCDD | ug/kg | -- | -- | -- | -- | 0.0699 [0.0725] | 2.23 | 1.37 | 0.258 | 2.05 | 0.0067 |
| 1,2,3,7,8,9-HxCDF | ug/kg | -- | -- | -- | -- | 0.011 [0.0119] | 0.441 | 0.322 | 0.26 | 1.65 | 0.00115 U |
| 1,2,3,7,8-PeCDD | ug/kg | -- | -- | -- | -- | 0.0144 [0.0162] | 0.375 | 0.252 | 0.0576 | 0.429 | 0.00207 J |
| 1,2,3,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.00377 J [0.00447 J] | 0.0927 | 0.0681 | 0.056 | 0.302 | 0.000583 J |
| 2,3,4,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.041 [0.0489] | 1.36 | 0.92 | 0.365 | 2.32 | 0.00251 J |
| 2,3,4,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.0256 [0.0306] | 0.721 | 0.531 | 0.514 | 2.97 | 0.00339 J |
| 2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.0018 UX [0.00243] | 0.0329 | 0.0224 | 0.00498 | 0.0375 | 0.000651 J |
| 2,3,7,8-TCDF | ug/kg | -- | -- | -- | -- | 0.0019 [0.00264] | 0.0162 | 0.0128 | 0.0131 | 0.0615 | 0.000756 J |
| 37Cl-2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.133 [0.129] | 0.155 | 0.145 | 0.134 | 0.135 | 0.139 |
| OCDD | ug/kg | -- | -- | -- | -- | 49.1 EJ [51.8 EJ] | 570 EDJ | 471 EDJ | 137 EDJ | 524 EDJ | 10.6 EJ |
| OCDF | ug/kg | -- | -- | -- | -- | 3.66 [3.95] | 207 EJ | 98.2 EJ | 18.9 EJ | 100 EJ | 0.0764 |
| Total HpCDD | ug/kg | -- | -- | -- | -- | 8.51 J [8.98 J] | 365 J | 223 J | 44.7 J | 241 J | 0.567 |
| Total HpCDF | ug/kg | -- | -- | -- | -- | 3.91 [4.2] | 277 J | 150 J | 31.6 J | 161 J | 0.0959 |
| Total HxCDD | ug/kg | -- | -- | -- | -- | 0.884 [0.97] | 47.3 J | 21.9 | 6.31 | 28.1 | 0.0795 |
| Total HxCDF | ug/kg | -- | -- | -- | -- | 0.991 [1.13] | 57.4 PJ | 33.9 | 10.3 | 62.2 J | 0.0477 |
| Total PeCDD | ug/kg | -- | -- | -- | -- | 0.108 [0.114] | 2.73 | 1.48 | 0.566 | 2.08 | 0.0144 |
| Total PeCDF | ug/kg | -- | -- | -- | -- | 0.277 [0.309] | 5.7 PJ | 4.14 | 2.61 | 16.3 PJ | 0.0288 |
| Total TCDD | ug/kg | -- | -- | -- | -- | 0.0251 [0.0285] | 0.296 | 0.196 | 0.0657 | 0.311 | 0.00603 |
| Total TCDF | ug/kg | -- | -- | -- | -- | 0.0691 [0.0818] | 0.394 | 0.276 | 0.194 | 0.76 PJ | 0.0145 |
| 2,3,7,8-TCDD TEQ | ug/kg | 1 | 5-20 | 0.072 | 0.95 | 0.123 [0.138] | 4.27 | 2.75 | 0.771 | 5.08 | 0.0121 |
| **SVOCs** | | | | | | | | | | | |
| Pentachlorophenol | mg/kg | -- | -- | -- | -- | 0.037 J [0.053 J] | 18 DJ | 1.2 DJ | 0.57 | 2.6 DJ | 0.25 U |
| Acenaphthene | mg/kg | -- | -- | -- | -- | 0.0081 J [0.0079 J] | 0.86 DJ | 0.12 DJ | 0.047 J | 0.42 DJ | 0.02 J |
| Acenaphthylene | mg/kg | -- | -- | -- | -- | 0.064 [0.07] | 4.4 DJ | 1.5 DJ | 1.1 | 10 DJ | 0.035 J |
| Anthracene | mg/kg | -- | -- | -- | -- | 0.074 [0.082] | 9.2 DJ | 2.2 DJ | 1.2 | 7.8 DJ | 0.062 |
| Benzo(a)anthracene | mg/kg | -- | -- | -- | -- | 0.11 J [0.11 J] | 9.4 DJ | 1.3 DJ | 1 | 17 DJ | 0.24 |
| Benzo(a)pyrene | mg/kg | -- | -- | -- | -- | 0.12 J [0.13 J] | 5.1 DJ | 1.1 DJ | 1.6 | 28 DJ | 0.26 |
| Benzo(b)fluoranthene | mg/kg | -- | -- | -- | -- | 0.21 J [0.25 J] | 21 DJ | 2.7 DJ | 4.1 JY | 45 DJ | 0.42 |
| Benzo(ghi)perylene | mg/kg | -- | -- | -- | -- | 0.15 J [0.18 J] | 8.6 DJ | 2.6 DJ | 1.9 | 24 DJ | 0.24 |
| Benzo(k)fluoranthene | mg/kg | -- | -- | -- | -- | 0.097 J [0.084 J] | 6.1 DJ | 1 DJ | 3.6 JY | 25 DJ | 0.14 |
| Chrysene | mg/kg | -- | -- | -- | -- | 0.13 J [0.15 J] | 11 DJ | 1.5 DJ | 1.8 | 19 DJ | 0.31 |
| Dibenzo(a,h)anthracene | mg/kg | -- | -- | -- | -- | 0.035 J [0.035 J] | 0.21 UJ | 0.6 DJ | 0.47 | 0.26 UJ | 0.058 |
| Fluoranthene | mg/kg | -- | -- | -- | -- | 0.22 [0.23] | 25 DJ | 2.4 DJ | 1.8 | 25 DJ | 0.56 |
| Fluorene | mg/kg | -- | -- | -- | -- | 0.0097 J [0.011 J] | 0.92 DJ | 0.16 DJ | 0.079 | 0.57 DJ | 0.014 J |
| Indeno(1,2,3-cd)pyrene | mg/kg | -- | -- | -- | -- | 0.13 J [0.16 J] | 10 DJ | 2.4 DJ | 2 | 26 DJ | 0.24 |
| Naphthalene | mg/kg | -- | -- | -- | -- | 0.018 J [0.016 J] | 3.8 DJ | 0.11 DJ | 0.12 | 0.7 DJ | 0.05 U |
| Phenanthrene | mg/kg | -- | -- | -- | -- | 0.074 [0.073] | 15 DJ | 0.61 DJ | 0.57 | 3.2 DJ | 0.19 |
| Pyrene | mg/kg | -- | -- | -- | -- | 0.15 J [0.16 J] | 13 DJ | 1.8 DJ | 1.4 | 15 DJ | 0.36 |
| Total PAHs | mg/kg | -- | -- | -- | -- | 1.6 J [1.75 J] | 143 | 22.1 J | 19.2 J | 247 | 3.15 J |
| **Metals** | | | | | | | | | | | |
| Arsenic | mg/kg | -- | -- | -- | -- | 11 [10.8] | 43.2 | 9.9 | 14.1 | 19 | 8.3 |
| Chromium | mg/kg | -- | -- | -- | -- | 25.4 [23.6] | 53.4 | 26.7 | 21.6 | 41.1 | 60.5 |
| Copper | mg/kg | -- | -- | -- | -- | 34.1 [32.4] | 40 | 41.7 | 21.9 | 28 | 27.1 |
| **Miscellaneous** | | | | | | | | | | | |
| Total Organic Carbon | mg/kg | -- | -- | -- | -- | 28,200 [34,900] | 41,000 | 64,700 | 26,200 | 45,800 | 15,400 |

**See notes on Page 12.**

**TABLE 1 - VALIDATED ANALTICAL DATA SUMMARY TABLE**

**FORMER KOPPERS WOOD-TREATING SITE - CARBONDALE, ILLINOIS**

| Sample ID: | | Current | | Proposed | | A4-2 | A4-3 | A4-4 | A4-5 | A4-6 | A4-7 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth Interval (in.): | | USEPA PRGs | | USEPA PRGs | | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 |
| Date Collected: | Units | R | C/I | R | C/I | 03/31/10 | 03/31/10 | 03/31/10 | 03/31/10 | 03/31/10 | 03/31/10 |
| **PCDDs/PCDFs** | | | | | | | | | | | |
| 1,2,3,4,6,7,8-HpCDD | ug/kg | -- | -- | -- | -- | 0.352 | 0.209 | 0.755 | 0.215 | 1.35 | 0.106 |
| 1,2,3,4,6,7,8-HpCDF | ug/kg | -- | -- | -- | -- | 0.0423 | 0.0196 | 0.132 | 0.0255 | 0.204 | 0.0118 |
| 1,2,3,4,7,8,9-HpCDF | ug/kg | -- | -- | -- | -- | 0.00384 J | 0.00157 J | 0.0104 | 0.00205 J | 0.0158 | 0.00122 J |
| 1,2,3,4,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.00417 J | 0.00232 J | 0.0106 | 0.00344 J | 0.0155 | 0.00143 J |
| 1,2,3,4,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00326 J | 0.00129 J | 0.00765 | 0.0044 J | 0.0123 | 0.000767 J |
| 1,2,3,6,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.0102 | 0.00506 | 0.0246 | 0.00768 | 0.0394 | 0.00287 J |
| 1,2,3,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00199 J | 0.00054 UX | 0.00601 | 0.00675 | 0.00814 | 0.000579 J |
| 1,2,3,7,8,9-HxCDD | ug/kg | -- | -- | -- | -- | 0.00702 | 0.00413 J | 0.018 | 0.00617 | 0.0253 | 0.00253 J |
| 1,2,3,7,8,9-HxCDF | ug/kg | -- | -- | -- | -- | 0.000976 J | 0.000399 U | 0.00245 J | 0.00289 J | 0.00362 J | 0.000546 U |
| 1,2,3,7,8-PeCDD | ug/kg | -- | -- | -- | -- | 0.00144 UX | 0.000645 UX | 0.00465 J | 0.00232 J | 0.00724 | 0.000623 J |
| 1,2,3,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.000631 J | 0.000581 U | 0.00116 J | 0.00157 J | 0.00239 J | 0.00066 U |
| 2,3,4,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00386 J | 0.000993 J | 0.00971 | 0.0195 | 0.0138 | 0.000912 J |
| 2,3,4,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.00576 | 0.00101 UX | 0.00987 | 0.0635 | 0.0129 | 0.000971 J |
| 2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.000457 UX | 0.000551 U | 0.00146 | 0.00127 UX | 0.00173 | 0.000247 U |
| 2,3,7,8-TCDF | ug/kg | -- | -- | -- | -- | 0.000624 UX | 0.000387 J | 0.00132 | 0.00265 | 0.00236 | 0.000271 U |
| 37Cl-2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.147 | 0.137 | 0.135 | 0.138 | 0.15 | 0.142 |
| OCDD | ug/kg | -- | -- | -- | -- | 12.1 EJ | 9.21 EJ | 15.9 EJ | 6.34 | 21.1 EJ | 5.03 |
| OCDF | ug/kg | -- | -- | -- | -- | 0.186 | 0.0876 | 0.477 | 0.0574 | 0.759 | 0.0421 |
| Total HpCDD | ug/kg | -- | -- | -- | -- | 0.777 | 0.461 | 1.62 | 0.527 | 4.85 | 0.244 |
| Total HpCDF | ug/kg | -- | -- | -- | -- | 0.208 | 0.0831 | 0.519 | 0.0853 | 0.867 | 0.0444 |
| Total HxCDD | ug/kg | -- | -- | -- | -- | 0.0966 | 0.0462 | 0.221 | 0.119 | 0.548 | 0.0348 |
| Total HxCDF | ug/kg | -- | -- | -- | -- | 0.0809 | 0.0227 | 0.198 PJ | 0.255 | 0.311 PJ | 0.0171 |
| Total PeCDD | ug/kg | -- | -- | -- | -- | 0.0102 | 0.00417 | 0.0464 | 0.0375 | 0.0767 | 0.00403 |
| Total PeCDF | ug/kg | -- | -- | -- | -- | 0.0452 | 0.00603 | 0.0958 PJ | 0.478 PJ | 0.123 PJ | 0.0073 |
| Total TCDD | ug/kg | -- | -- | -- | -- | 0.00734 | 0.00125 | 0.0142 | 0.0176 | 0.0262 | 0.000713 U |
| Total TCDF | ug/kg | -- | -- | -- | -- | 0.0121 | 0.0014 | 0.041 | 0.144 | 0.0629 PJ | 0.00225 |
| 2,3,7,8-TCDD TEQ | ug/kg | 1 | 5-20 | 0.072 | 0.95 | 0.0126 | 0.00651 | 0.031 | 0.0311 | 0.0472 | 0.00453 |
| **SVOCs** | | | | | | | | | | | |
| Pentachlorophenol | mg/kg | -- | -- | -- | -- | 0.045 U | 0.046 U | 0.31 U | 0.49 U | 0.31 U | 0.05 U |
| Acenaphthene | mg/kg | -- | -- | -- | -- | 0.01 | 0.0093 U | 0.022 J | 0.24 | 0.054 J | 0.008 J |
| Acenaphthylene | mg/kg | -- | -- | -- | -- | 0.035 | 0.0032 J | 0.045 J | 0.58 | 0.29 | 0.011 |
| Anthracene | mg/kg | -- | -- | -- | -- | 0.036 | 0.0043 J | 0.06 J | 0.86 | 0.35 | 0.013 |
| Benzo(a)anthracene | mg/kg | -- | -- | -- | -- | 0.077 | 0.011 | 0.22 | 1.1 | 0.76 | 0.046 |
| Benzo(a)pyrene | mg/kg | -- | -- | -- | -- | 0.085 | 0.011 | 0.3 | 1.1 | 0.8 | 0.047 |
| Benzo(b)fluoranthene | mg/kg | -- | -- | -- | -- | 0.14 | 0.016 | 0.43 | 2 JY | 1.6 | 0.1 JY |
| Benzo(ghi)perylene | mg/kg | -- | -- | -- | -- | 0.092 | 0.012 | 0.33 | 1.4 | 0.77 | 0.039 |
| Benzo(k)fluoranthene | mg/kg | -- | -- | -- | -- | 0.036 | 0.0062 J | 0.26 | 1.7 JY | 0.5 | 0.088 JY |
| Chrysene | mg/kg | -- | -- | -- | -- | 0.11 | 0.013 | 0.37 | 1.3 | 1.1 | 0.064 |
| Dibenzo(a,h)anthracene | mg/kg | -- | -- | -- | -- | 0.022 | 0.0021 J | 0.068 | 0.19 | 0.22 | 0.008 J |
| Fluoranthene | mg/kg | -- | -- | -- | -- | 0.22 | 0.02 | 0.56 | 3.2 | 1.4 | 0.087 |
| Fluorene | mg/kg | -- | -- | -- | -- | 0.0076 J | 0.0093 U | 0.025 J | 0.23 | 0.062 U | 0.0079 J |
| Indeno(1,2,3-cd)pyrene | mg/kg | -- | -- | -- | -- | 0.084 | 0.0093 | 0.28 | 1.1 | 0.8 | 0.037 |
| Naphthalene | mg/kg | -- | -- | -- | -- | 0.056 | 0.0093 U | 0.063 U | 0.56 | 0.19 | 0.016 |
| Phenanthrene | mg/kg | -- | -- | -- | -- | 0.15 | 0.015 | 0.17 | 2.5 | 0.74 | 0.051 |
| Pyrene | mg/kg | -- | -- | -- | -- | 0.12 | 0.012 | 0.37 | 1.8 | 0.89 | 0.069 |
| Total PAHs | mg/kg | -- | -- | -- | -- | 1.28 J | 0.135 J | 3.51 J | 18.2 | 10.5 J | 0.604 J |
| **Metals** | | | | | | | | | | | |
| Arsenic | mg/kg | -- | -- | -- | -- | 10.5 | 11.9 | 7 | 11.4 | 13 | 9.3 |
| Chromium | mg/kg | -- | -- | -- | -- | 21 | 20.6 | 20.6 | 23.9 | 28.2 | 18 |
| Copper | mg/kg | -- | -- | -- | -- | 38.1 | 20.7 | 36.8 | 128 | 46.7 | 21.9 |
| **Miscellaneous** | | | | | | | | | | | |
| Total Organic Carbon | mg/kg | -- | -- | -- | -- | NA | NA | 34,100 | NA | 83,300 | 13,900 |

**See notes on Page 12.**

**TABLE 1 - VALIDATED ANALTICAL DATA SUMMARY TABLE**

**FORMER KOPPERS WOOD-TREATING SITE - CARBONDALE, ILLINOIS**

| Sample ID: | | Current USEPA PRGs | | Proposed USEPA PRGs | | A4-8 | A4-9 | A4-10 | A5-6 |
|---|---|---|---|---|---|---|---|---|---|
| Depth Interval (in.): | | | | | | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 |
| Date Collected: | Units | R | C/I | R | C/I | 03/31/10 | 03/31/10 | 03/31/10 | 03/30/10 |
| **PCDDs/PCDFs** | | | | | | | | | |
| 1,2,3,4,6,7,8-HpCDD | ug/kg | -- | -- | -- | -- | 0.474 [0.431] | 0.0596 | 0.084 | 9.9 EJ [15 EJ] |
| 1,2,3,4,6,7,8-HpCDF | ug/kg | -- | -- | -- | -- | 0.0824 [0.0751] | 0.00254 J | 0.000582 U | 1.38 [2.35] |
| 1,2,3,4,7,8,9-HpCDF | ug/kg | -- | -- | -- | -- | 0.00579 [0.00603] | 0.000676 U | 0.000429 U | 0.118 [0.173] |
| 1,2,3,4,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.00766 [0.00705] | 0.00145 UX | 0.00204 J | 0.0812 [0.121] |
| 1,2,3,4,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00521 [0.00428 J] | 0.000413 U | 0.000325 U | 0.0763 [0.105] |
| 1,2,3,6,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.016 [0.0137] | 0.00167 J | 0.00222 J | 0.277 [0.405] |
| 1,2,3,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00348 J [0.00311 J] | 0.000417 U | 0.00032 U | 0.0246 [0.0361] |
| 1,2,3,7,8,9-HxCDD | ug/kg | -- | -- | -- | -- | 0.0131 [0.0114] | 0.00182 J | 0.00227 J | 0.123 [0.19] |
| 1,2,3,7,8,9-HxCDF | ug/kg | -- | -- | -- | -- | 0.00137 J [0.00126 J] | 0.000363 U | 0.000539 U | 0.0224 [0.0256] |
| 1,2,3,7,8-PeCDD | ug/kg | -- | -- | -- | -- | 0.00348 J [0.00341 J] | 0.00062 U | 0.00083 J | 0.0325 [0.0443] |
| 1,2,3,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.000528 J [0.000691 J] | 0.000512 U | 0.000404 U | 0.00621 [0.00719] |
| 2,3,4,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00604 [0.00498] | 0.000484 U | 0.000407 U | 0.0615 [0.0779] |
| 2,3,4,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.00598 [0.00519] | 0.000933 U | 0.000403 U | 0.0355 [0.0416] |
| 2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.000716 J [0.000635 J] | 0.000245 J | 0.000211 U | 0.00399 [0.00434] |
| 2,3,7,8-TCDF | ug/kg | -- | -- | -- | -- | 0.00082 J [0.000873 J] | 0.000379 U | 0.000349 U | 0.00155 [0.00188] |
| 37Cl-2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.134 [0.14] | 0.143 | 0.135 | 0.136 [0.139] |
| OCDD | ug/kg | -- | -- | -- | -- | 8.69 EJ [8.57 EJ] | 1.57 | 3.26 | 94.9 EJ [167 EDJ] |
| OCDF | ug/kg | -- | -- | -- | -- | 0.28 [0.246] | 0.00721 J | 0.00142 UX | 7.43 [8.96 EJ] |
| Total HpCDD | ug/kg | -- | -- | -- | -- | 1.03 [0.965] | 0.148 | 0.229 | 25.5 J [37 J] |
| Total HpCDF | ug/kg | -- | -- | -- | -- | 0.29 [0.264] | 0.00254 | 0.00103 UX | 8.56 [12.8] |
| Total HxCDD | ug/kg | -- | -- | -- | -- | 0.154 [0.149] | 0.0256 | 0.0417 | 2.91 [3.68] |
| Total HxCDF | ug/kg | -- | -- | -- | -- | 0.115 [0.104] | 0.00207 | 0.000391 | 2.29 [2.68] |
| Total PeCDD | ug/kg | -- | -- | -- | -- | 0.03 [0.0252] | 0.00336 | 0.00656 | 0.325 [0.414] |
| Total PeCDF | ug/kg | -- | -- | -- | -- | 0.0549 [0.0514] | 0.00159 | 0.000404 U | 0.304 PJ [0.352 PJ] |
| Total TCDD | ug/kg | -- | -- | -- | -- | 0.00524 [0.00594] | 0.000493 | 0.000336 UX | 0.0642 [0.0664] |
| Total TCDF | ug/kg | -- | -- | -- | -- | 0.022 [0.0152] | 0.000379 U | 0.00039 UX | 0.041 PJ [0.0473 PJ] |
| 2,3,7,8-TCDD TEQ | ug/kg | 1 | 5-20 | 0.072 | 0.95 | 0.0197 [0.0181] | 0.00169 | 0.0033 | 0.259 [0.386] |
| **SVOCs** | | | | | | | | | |
| Pentachlorophenol | mg/kg | -- | -- | -- | -- | 0.047 U [0.097 U] | 0.051 U | 0.043 U | 0.4 J [0.53 J] |
| Acenaphthene | mg/kg | -- | -- | -- | -- | 0.0089 J [0.02 U] | 0.01 U | 0.0088 U | 0.13 [0.18] |
| Acenaphthylene | mg/kg | -- | -- | -- | -- | 0.035 [0.02] | 0.0046 J | 0.0088 U | 1.8 [2.6] |
| Anthracene | mg/kg | -- | -- | -- | -- | 0.038 [0.026] | 0.0043 J | 0.0088 U | 2.2 [3] |
| Benzo(a)anthracene | mg/kg | -- | -- | -- | -- | 0.11 [0.081] | 0.0098 J | 0.0088 U | 1.2 [1.7] |
| Benzo(a)pyrene | mg/kg | -- | -- | -- | -- | 0.13 [0.11] | 0.014 | 0.0027 J | 2.3 [3.6] |
| Benzo(b)fluoranthene | mg/kg | -- | -- | -- | -- | 0.3 JY [0.25 JY] | 0.027 | 0.0035 J | 3.3 [5.5] |
| Benzo(ghi)perylene | mg/kg | -- | -- | -- | -- | 0.14 [0.12] | 0.016 | 0.0088 U | 2.9 [4.2] |
| Benzo(k)fluoranthene | mg/kg | -- | -- | -- | -- | 0.26 JY [0.22 JY] | 0.0089 J | 0.0088 U | 1.5 [1.9] |
| Chrysene | mg/kg | -- | -- | -- | -- | 0.18 [0.16] | 0.017 | 0.0088 U | 1.7 [3] |
| Dibenzo(a,h)anthracene | mg/kg | -- | -- | -- | -- | 0.03 [0.029] | 0.01 U | 0.0088 U | 0.67 [1.1] |
| Fluoranthene | mg/kg | -- | -- | -- | -- | 0.26 [0.23] | 0.025 | 0.0066 J | 1.5 [2.2] |
| Fluorene | mg/kg | -- | -- | -- | -- | 0.006 J [0.0066 J] | 0.01 U | 0.0088 U | 0.2 [0.27] |
| Indeno(1,2,3-cd)pyrene | mg/kg | -- | -- | -- | -- | 0.13 [0.12] | 0.014 | 0.0088 U | 2.4 [3.6] |
| Naphthalene | mg/kg | -- | -- | -- | -- | 0.023 [0.011 J] | 0.01 U | 0.0088 U | 0.089 J [0.14] |
| Phenanthrene | mg/kg | -- | -- | -- | -- | 0.11 [0.087] | 0.015 | 0.0076 J | 0.35 [0.5] |
| Pyrene | mg/kg | -- | -- | -- | -- | 0.17 [0.14] | 0.016 | 0.0052 J | 1.7 [2.5] |
| Total PAHs | mg/kg | -- | -- | -- | -- | 1.67 J [1.39 J] | 0.172 J | 0.0256 J | 23.9 J [36] |
| **Metals** | | | | | | | | | |
| Arsenic | mg/kg | -- | -- | -- | -- | 7.1 [6.7] | 8.4 | 12.8 | 6.5 [6.4] |
| Chromium | mg/kg | -- | -- | -- | -- | 18.2 [18.9] | 19.6 | 15 | 20.2 J [21.2 J] |
| Copper | mg/kg | -- | -- | -- | -- | 24.6 [23.8] | 22.9 | 16.7 | 24.3 [26.8] |
| **Miscellaneous** | | | | | | | | | |
| Total Organic Carbon | mg/kg | -- | -- | -- | -- | NA | NA | NA | 28,400 [27,700] |

**See notes on Page 12.**

**TABLE 1 - VALIDATED ANALTICAL DATA SUMMARY TABLE**

**FORMER KOPPERS WOOD-TREATING SITE - CARBONDALE, ILLINOIS**

| Sample ID: | | Current | | Proposed | | A5-7 | A6-1 | A6-2 | A6-3 | A6-4 |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth Interval (in.): | | USEPA PRGs | | USEPA PRGs | | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 | 0 - 6 |
| Date Collected: | Units | R | C/I | R | C/I | 03/30/10 | 03/31/10 | 03/31/10 | 03/31/10 | 03/31/10 |
| **PCDDs/PCDFs** | | | | | | | | | | |
| 1,2,3,4,6,7,8-HpCDD | ug/kg | -- | -- | -- | -- | 23.5 EJ | 2.14 | 0.728 | 0.341 | 0.633 |
| 1,2,3,4,6,7,8-HpCDF | ug/kg | -- | -- | -- | -- | 4.34 EJ | 0.382 J | 0.123 | 0.0417 | 0.103 |
| 1,2,3,4,7,8,9-HpCDF | ug/kg | -- | -- | -- | -- | 0.358 | 0.0297 | 0.00903 | 0.00249 UX | 0.00845 |
| 1,2,3,4,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.194 | 0.0194 | 0.00641 | 0.00476 J | 0.00719 |
| 1,2,3,4,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.187 | 0.0169 | 0.00393 J | 0.00334 J | 0.00637 |
| 1,2,3,6,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.823 | 0.0692 | 0.0218 | 0.0101 | 0.02 |
| 1,2,3,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.0613 | 0.00723 | 0.00177 J | 0.00192 J | 0.00428 J |
| 1,2,3,7,8,9-HxCDD | ug/kg | -- | -- | -- | -- | 0.314 | 0.0302 | 0.0108 | 0.00764 | 0.0125 |
| 1,2,3,7,8,9-HxCDF | ug/kg | -- | -- | -- | -- | 0.0487 | 0.0043 J | 0.000931 U | 0.000822 J | 0.00235 J |
| 1,2,3,7,8-PeCDD | ug/kg | -- | -- | -- | -- | 0.0756 | 0.00746 | 0.0026 J | 0.00224 J | 0.00307 J |
| 1,2,3,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.0115 | 0.0013 J | 0.000532 J | 0.000412 J | 0.00115 J |
| 2,3,4,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.154 | 0.0155 | 0.0041 J | 0.0032 J | 0.00927 |
| 2,3,4,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.0706 | 0.00612 | 0.00182 J | 0.00445 J | 0.0169 |
| 2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.008 | 0.000944 J | 0.000562 J | 0.00046 J | 0.00046 UX |
| 2,3,7,8-TCDF | ug/kg | -- | -- | -- | -- | 0.00281 | 0.000794 U | 0.000249 J | 0.0005 J | 0.00131 |
| 37Cl-2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.144 | 0.134 | 0.142 | 0.139 | 0.145 |
| OCDD | ug/kg | -- | -- | -- | -- | 214 EDJ | 26 EJ | 15.2 EJ | 12.8 EJ | 10.4 EJ |
| OCDF | ug/kg | -- | -- | -- | -- | 17.8 EJ | 1.77 | 0.575 | 0.149 | 0.459 |
| Total HpCDD | ug/kg | -- | -- | -- | -- | 54.3 J | 4.39 | 1.45 | 0.77 | 1.27 |
| Total HpCDF | ug/kg | -- | -- | -- | -- | 27.7 J | 2.01 J | 0.572 | 0.154 | 0.44 |
| Total HxCDD | ug/kg | -- | -- | -- | -- | 6.98 | 0.5 | 0.156 | 0.111 | 0.158 |
| Total HxCDF | ug/kg | -- | -- | -- | -- | 5.96 | 0.548 | 0.137 | 0.0619 | 0.174 |
| Total PeCDD | ug/kg | -- | -- | -- | -- | 0.838 | 0.0725 | 0.0201 | 0.0179 | 0.0291 |
| Total PeCDF | ug/kg | -- | -- | -- | -- | 0.637 PJ | 0.0663 PJ | 0.017 PJ | 0.0399 | 0.132 PJ |
| Total TCDD | ug/kg | -- | -- | -- | -- | 0.143 | 0.0141 | 0.00514 | 0.004 | 0.00796 |
| Total TCDF | ug/kg | -- | -- | -- | -- | 0.0848 PJ | 0.00742 PJ | 0.0032 PJ | 0.013 | 0.0372 |
| 2,3,7,8-TCDD TEQ | ug/kg | 1 | 5-20 | 0.072 | 0.95 | 0.635 | 0.0604 | 0.022 | 0.015 | 0.0252 |
| **SVOCs** | | | | | | | | | | |
| Pentachlorophenol | mg/kg | -- | -- | -- | -- | 2.1 DJ | 0.19 | 0.13 | 0.23 U | 0.09 U |
| Acenaphthene | mg/kg | -- | -- | -- | -- | 0.4 DJ | 0.0094 J | 0.0094 J | 1.2 | 0.019 |
| Acenaphthylene | mg/kg | -- | -- | -- | -- | 4.6 DJ | 0.14 | 0.18 | 0.34 | 0.098 |
| Anthracene | mg/kg | -- | -- | -- | -- | 5.6 DJ | 0.21 | 0.19 | 0.46 | 0.093 |
| Benzo(a)anthracene | mg/kg | -- | -- | -- | -- | 2.1 DJ | 0.12 | 0.41 | 0.5 | 0.2 |
| Benzo(a)pyrene | mg/kg | -- | -- | -- | -- | 5.6 DJ | 0.18 | 0.61 | 0.56 | 0.22 |
| Benzo(b)fluoranthene | mg/kg | -- | -- | -- | -- | 9 DJ | 0.37 | 1.1 | 1.1 JY | 0.35 |
| Benzo(ghi)perylene | mg/kg | -- | -- | -- | -- | 8.6 DJ | 0.19 | 0.38 | 0.9 | 0.21 |
| Benzo(k)fluoranthene | mg/kg | -- | -- | -- | -- | 2 DJ | 0.11 | 0.35 | 0.97 JY | 0.11 |
| Chrysene | mg/kg | -- | -- | -- | -- | 3.7 DJ | 0.2 | 0.58 | 0.53 | 0.26 |
| Dibenzo(a,h)anthracene | mg/kg | -- | -- | -- | -- | 2 DJ | 0.051 | 0.13 | 0.11 | 0.042 |
| Fluoranthene | mg/kg | -- | -- | -- | -- | 4.5 DJ | 0.19 | 0.29 | 1.6 | 0.34 |
| Fluorene | mg/kg | -- | -- | -- | -- | 0.53 DJ | 0.014 J | 0.02 | 0.99 | 0.021 |
| Indeno(1,2,3-cd)pyrene | mg/kg | -- | -- | -- | -- | 7.5 DJ | 0.23 | 0.4 | 0.85 | 0.2 |
| Naphthalene | mg/kg | -- | -- | -- | -- | 0.68 DJ | 0.017 J | 0.0081 J | 2 | 0.057 |
| Phenanthrene | mg/kg | -- | -- | -- | -- | 2.5 DJ | 0.068 | 0.067 | 2.1 | 0.19 |
| Pyrene | mg/kg | -- | -- | -- | -- | 3.4 DJ | 0.18 | 0.34 | 1.1 | 0.23 |
| Total PAHs | mg/kg | -- | -- | -- | -- | 62.7 | 2.28 J | 5.06 J | 14.3 | 2.64 |
| **Metals** | | | | | | | | | | |
| Arsenic | mg/kg | -- | -- | -- | -- | 10.4 | 7.4 | 11.9 | 16.5 | 8.2 |
| Chromium | mg/kg | -- | -- | -- | -- | 21.9 J | 15.4 | 15.1 | 22.2 | 19 |
| Copper | mg/kg | -- | -- | -- | -- | 26.8 | 16.2 | 15.6 | 31.2 | 38.2 |
| **Miscellaneous** | | | | | | | | | | |
| Total Organic Carbon | mg/kg | -- | -- | -- | -- | 27,100 | 24,900 | 15,300 | 20,300 | NA |

**See notes on Page 12.**

**TABLE 1 - VALIDATED ANALTICAL DATA SUMMARY TABLE**

**FORMER KOPPERS WOOD-TREATING SITE - CARBONDALE, ILLINOIS**

| Sample ID: | | Current USEPA PRGs | | Proposed USEPA PRGs | | A6-5 | A6-6 | A6-7 |
|---|---|---|---|---|---|---|---|---|
| Depth Interval (in.): | | | | | | 0 - 6 | 0 - 6 | 0 - 6 |
| Date Collected: | Units | R | C/I | R | C/I | 03/31/10 | 03/31/10 | 03/31/10 |
| **PCDDs/PCDFs** | | | | | | | | |
| 1,2,3,4,6,7,8-HpCDD | ug/kg | -- | -- | -- | -- | 0.0916 [0.0975] | 0.358 | 0.136 |
| 1,2,3,4,6,7,8-HpCDF | ug/kg | -- | -- | -- | -- | 0.00565 [0.00748] | 0.0426 | 0.019 |
| 1,2,3,4,7,8,9-HpCDF | ug/kg | -- | -- | -- | -- | 0.00126 U [0.000713 U] | 0.0026 J | 0.0014 J |
| 1,2,3,4,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.00179 J [0.0012 UX] | 0.00372 J | 0.00174 J |
| 1,2,3,4,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.000502 U [0.000605 U] | 0.00187 J | 0.00105 J |
| 1,2,3,6,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.00266 J [0.00261 UX] | 0.0107 | 0.00418 J |
| 1,2,3,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.0005 U [0.000621 U] | 0.00114 UX | 0.00114 UX |
| 1,2,3,7,8,9-HxCDD | ug/kg | -- | -- | -- | -- | 0.00258 J [0.00254 J] | 0.007 | 0.00295 J |
| 1,2,3,7,8,9-HxCDF | ug/kg | -- | -- | -- | -- | 0.000271 U [0.000401 U] | 0.000666 U | 0.000562 U |
| 1,2,3,7,8-PeCDD | ug/kg | -- | -- | -- | -- | 0.000786 J [0.000701 J] | 0.00187 J | 0.000761 J |
| 1,2,3,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.000389 U [0.000406 U] | 0.000311 J | 0.000683 U |
| 2,3,4,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.00054 J [0.000621 J] | 0.00246 J | 0.00134 J |
| 2,3,4,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.00102 J [0.000761 J] | 0.00234 J | 0.00247 J |
| 2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.000348 U [0.000344 U] | 0.000468 J | 0.000321 J |
| 2,3,7,8-TCDF | ug/kg | -- | -- | -- | -- | 0.000507 U [0.000642 U] | 0.000299 UX | 0.000339 U |
| 37Cl-2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.135 [0.137] | 0.142 | 0.136 |
| OCDD | ug/kg | -- | -- | -- | -- | 2.84 [3.24] | 11.5 EJ | 3.6 |
| OCDF | ug/kg | -- | -- | -- | -- | 0.0207 [0.0259] | 0.175 | 0.0791 |
| Total HpCDD | ug/kg | -- | -- | -- | -- | 0.221 [0.226] | 0.809 | 0.297 |
| Total HpCDF | ug/kg | -- | -- | -- | -- | 0.0223 [0.0259] | 0.176 | 0.08 |
| Total HxCDD | ug/kg | -- | -- | -- | -- | 0.0332 [0.0267] | 0.104 | 0.0407 |
| Total HxCDF | ug/kg | -- | -- | -- | -- | 0.00805 [0.00798] | 0.0528 | 0.0307 |
| Total PeCDD | ug/kg | -- | -- | -- | -- | 0.00781 J [0.00212 J] | 0.0142 | 0.0072 |
| Total PeCDF | ug/kg | -- | -- | -- | -- | 0.00719 [0.00313] | 0.0219 | 0.0171 PJ |
| Total TCDD | ug/kg | -- | -- | -- | -- | 0.000729 [0.000506 UX] | 0.00296 | 0.00365 |
| Total TCDF | ug/kg | -- | -- | -- | -- | 0.00196 [0.000775] | 0.00631 | 0.00791 PJ |
| 2,3,7,8-TCDD TEQ | ug/kg | 1 | 5-20 | 0.072 | 0.95 | 0.00368 [0.00327] | 0.0132 | 0.00562 |
| **SVOCs** | | | | | | | | |
| Pentachlorophenol | mg/kg | -- | -- | -- | -- | 0.049 U | 0.054 U | 0.047 U |
| Acenaphthene | mg/kg | -- | -- | -- | -- | 0.0099 U | 0.011 | 0.011 |
| Acenaphthylene | mg/kg | -- | -- | -- | -- | 0.012 | 0.079 | 0.053 |
| Anthracene | mg/kg | -- | -- | -- | -- | 0.011 | 0.071 | 0.051 |
| Benzo(a)anthracene | mg/kg | -- | -- | -- | -- | 0.024 | 0.079 | 0.089 |
| Benzo(a)pyrene | mg/kg | -- | -- | -- | -- | 0.03 | 0.16 | 0.12 |
| Benzo(b)fluoranthene | mg/kg | -- | -- | -- | -- | 0.051 | 0.27 | 0.2 |
| Benzo(ghi)perylene | mg/kg | -- | -- | -- | -- | 0.029 | 0.15 | 0.11 |
| Benzo(k)fluoranthene | mg/kg | -- | -- | -- | -- | 0.013 | 0.081 | 0.071 |
| Chrysene | mg/kg | -- | -- | -- | -- | 0.032 | 0.13 | 0.1 |
| Dibenzo(a,h)anthracene | mg/kg | -- | -- | -- | -- | 0.007 J | 0.042 | 0.028 |
| Fluoranthene | mg/kg | -- | -- | -- | -- | 0.045 | 0.11 | 0.15 |
| Fluorene | mg/kg | -- | -- | -- | -- | 0.0099 U | 0.017 | 0.012 |
| Indeno(1,2,3-cd)pyrene | mg/kg | -- | -- | -- | -- | 0.028 | 0.15 | 0.11 |
| Naphthalene | mg/kg | -- | -- | -- | -- | 0.0054 J | 0.028 | 0.043 |
| Phenanthrene | mg/kg | -- | -- | -- | -- | 0.021 | 0.059 | 0.12 |
| Pyrene | mg/kg | -- | -- | -- | -- | 0.033 | 0.081 | 0.087 |
| Total PAHs | mg/kg | -- | -- | -- | -- | 0.341 J | 1.52 | 1.36 |
| **Metals** | | | | | | | | |
| Arsenic | mg/kg | -- | -- | -- | -- | 8 | 21.5 | 8.5 |
| Chromium | mg/kg | -- | -- | -- | -- | 14.7 | 19.5 | 16.8 |
| Copper | mg/kg | -- | -- | -- | -- | 17.2 | 24 | 23.6 |
| **Miscellaneous** | | | | | | | | |
| Total Organic Carbon | mg/kg | -- | -- | -- | -- | 13,300 | 12,800 | NA |

**See notes on Page 12.**

**TABLE 1 - VALIDATED ANALTICAL DATA SUMMARY TABLE**

**FORMER KOPPERS WOOD-TREATING SITE - CARBONDALE, ILLINOIS**

| Sample ID: | | Current | | Proposed | | A6-8 | NPL |
|---|---|---|---|---|---|---|---|
| Depth Interval (in.): | | USEPA PRGs | | USEPA PRGs | | 0 - 6 | 0 - 6 |
| Date Collected: | Units | R | C/I | R | C/I | 03/31/10 | 03/29/10 |
| **PCDDs/PCDFs** | | | | | | | |
| 1,2,3,4,6,7,8-HpCDD | ug/kg | -- | -- | -- | -- | 0.0847 | 0.413 |
| 1,2,3,4,6,7,8-HpCDF | ug/kg | -- | -- | -- | -- | 0.0013 J | 0.0518 |
| 1,2,3,4,7,8,9-HpCDF | ug/kg | -- | -- | -- | -- | 0.000229 U | 0.004 J |
| 1,2,3,4,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.00146 J | 0.00475 J |
| 1,2,3,4,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.000207 U | 0.00355 J |
| 1,2,3,6,7,8-HxCDD | ug/kg | -- | -- | -- | -- | 0.00216 J | 0.0114 |
| 1,2,3,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.000207 U | 0.00195 J |
| 1,2,3,7,8,9-HxCDD | ug/kg | -- | -- | -- | -- | 0.00262 J | 0.00723 |
| 1,2,3,7,8,9-HxCDF | ug/kg | -- | -- | -- | -- | 0.000329 U | 0.00101 U |
| 1,2,3,7,8-PeCDD | ug/kg | -- | -- | -- | -- | 0.00075 UX | 0.00244 J |
| 1,2,3,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.000421 U | 0.000808 J |
| 2,3,4,6,7,8-HxCDF | ug/kg | -- | -- | -- | -- | 0.000245 U | 0.00348 J |
| 2,3,4,7,8-PeCDF | ug/kg | -- | -- | -- | -- | 0.000373 U | 0.00328 J |
| 2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.00114 UX | 0.00063 J |
| 2,3,7,8-TCDF | ug/kg | -- | -- | -- | -- | 0.00025 U | 0.000928 J |
| 37Cl-2,3,7,8-TCDD | ug/kg | -- | -- | -- | -- | 0.13 | 0.142 |
| OCDD | ug/kg | -- | -- | -- | -- | 3.36 | 12.6 EJ |
| OCDF | ug/kg | -- | -- | -- | -- | 0.00396 J | 0.215 |
| Total HpCDD | ug/kg | -- | -- | -- | -- | 0.216 | 0.854 |
| Total HpCDF | ug/kg | -- | -- | -- | -- | 0.0013 | 0.212 |
| Total HxCDD | ug/kg | -- | -- | -- | -- | 0.0376 | 0.12 |
| Total HxCDF | ug/kg | -- | -- | -- | -- | 0.00127 UX | 0.0614 |
| Total PeCDD | ug/kg | -- | -- | -- | -- | 0.00429 | 0.0381 |
| Total PeCDF | ug/kg | -- | -- | -- | -- | 0.000299 | 0.0229 |
| Total TCDD | ug/kg | -- | -- | -- | -- | 0.00132 | 0.0319 |
| Total TCDF | ug/kg | -- | -- | -- | -- | 0.000374 | 0.0201 |
| 2,3,7,8-TCDD TEQ | ug/kg | 1 | 5-20 | 0.072 | 0.95 | 0.00249 | 0.0159 |
| **SVOCs** | | | | | | | |
| Pentachlorophenol | mg/kg | -- | -- | -- | -- | 0.041 U | 0.016 J |
| Acenaphthene | mg/kg | -- | -- | -- | -- | 0.0084 U | 0.011 J |
| Acenaphthylene | mg/kg | -- | -- | -- | -- | 0.0084 U | 0.039 |
| Anthracene | mg/kg | -- | -- | -- | -- | 0.0013 J | 0.058 |
| Benzo(a)anthracene | mg/kg | -- | -- | -- | -- | 0.0084 U | 0.14 |
| Benzo(a)pyrene | mg/kg | -- | -- | -- | -- | 0.0084 U | 0.14 |
| Benzo(b)fluoranthene | mg/kg | -- | -- | -- | -- | 0.0024 J | 0.16 |
| Benzo(ghi)perylene | mg/kg | -- | -- | -- | -- | 0.0084 U | 0.12 |
| Benzo(k)fluoranthene | mg/kg | -- | -- | -- | -- | 0.0035 J | 0.069 |
| Chrysene | mg/kg | -- | -- | -- | -- | 0.0084 U | 0.15 |
| Dibenzo(a,h)anthracene | mg/kg | -- | -- | -- | -- | 0.0084 U | 0.015 J |
| Fluoranthene | mg/kg | -- | -- | -- | -- | 0.0055 J | 0.29 |
| Fluorene | mg/kg | -- | -- | -- | -- | 0.0084 U | 0.0086 J |
| Indeno(1,2,3-cd)pyrene | mg/kg | -- | -- | -- | -- | 0.0084 U | 0.094 |
| Naphthalene | mg/kg | -- | -- | -- | -- | 0.0084 U | 0.043 |
| Phenanthrene | mg/kg | -- | -- | -- | -- | 0.0068 J | 0.19 |
| Pyrene | mg/kg | -- | -- | -- | -- | 0.0038 J | 0.24 |
| Total PAHs | mg/kg | -- | -- | -- | -- | 0.0233 J | 1.77 J |
| **Metals** | | | | | | | |
| Arsenic | mg/kg | -- | -- | -- | -- | 10.4 | 9.6 |
| Chromium | mg/kg | -- | -- | -- | -- | 15 | 12.9 J |
| Copper | mg/kg | -- | -- | -- | -- | 15.3 | 21.8 |
| **Miscellaneous** | | | | | | | |
| Total Organic Carbon | mg/kg | -- | -- | -- | -- | NA | NA |

**See notes on Page 12.**

**TABLE 1 - VALIDATED ANALYTICAL DATA SUMMARY TABLE**

**FORMER KOPPERS WOOD-TREATING SITE - CARBONDALE, ILLINOIS**

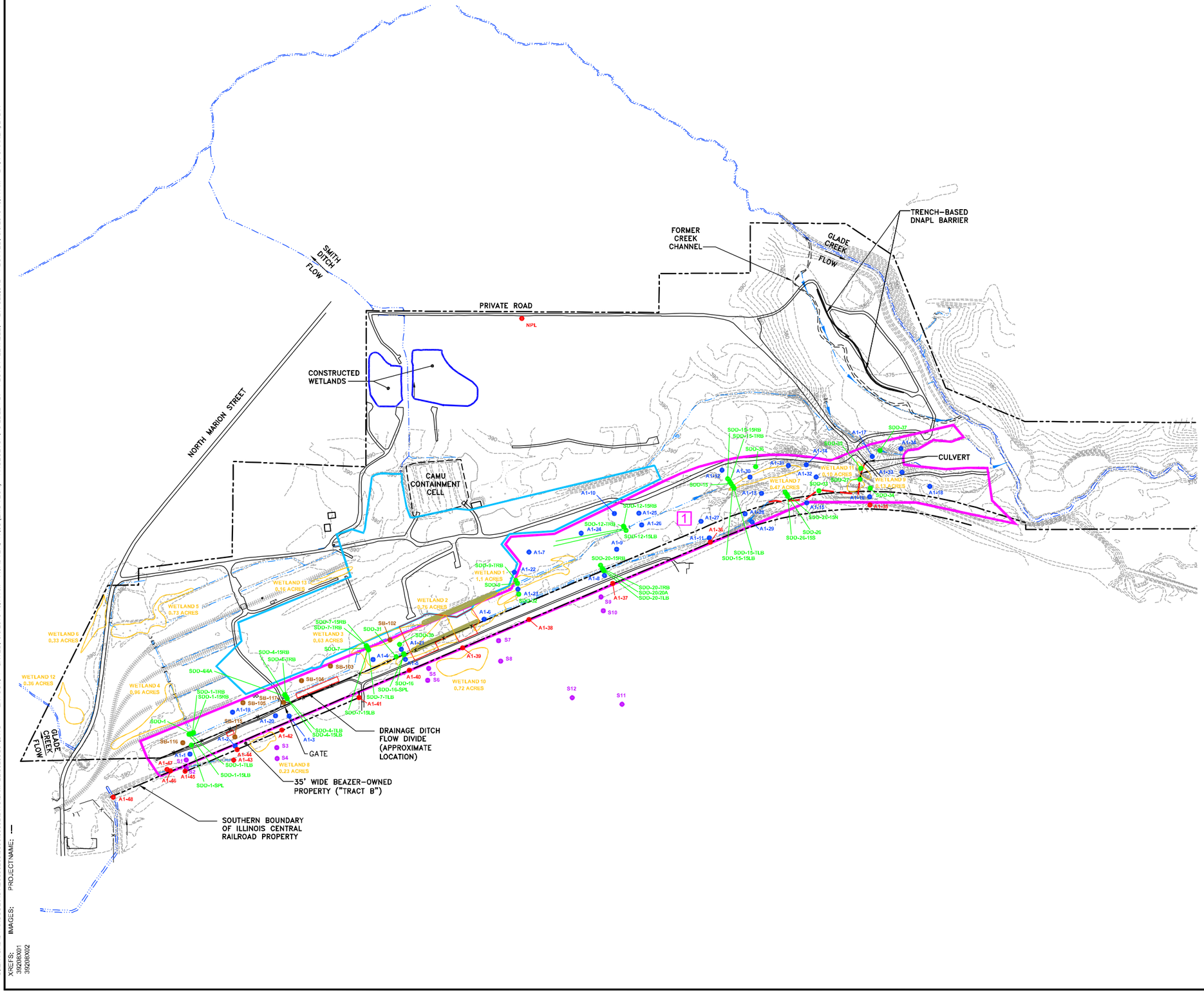
**Notes:**

PCDDs/PCDFs = polychlorinated dibenzo-p-dioxins/polychlorinated dibenzofurans
PAHs - polycyclic aromatic hydrocarbons
TEQ = Toxicity Equivalent, calculated using WHO-2005 TEFs and non-detects = 0
WHO = World Health Organization
TEFs = Toxicity Equivalent Factors
USEPA = United States Environmental Protection Agency
PRGs = preliminary remediation goals
Current: USEPA April 1998
Proposed: USEPA December 2009
R = Residential
C/I = Commercial/Industrial
NA = not analyzed
ug/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
J = Estimated value.
U = Not detected above laboratory reporting limit (associated value is the laboratory reporting limit).
DJ = Diluted sample result less than the calibration range.
JY = The laboratory quantitated the peak as benzo(b)fluoranthene and reported benzo(k)fluoranthene as non-detect. The benzo(k)fluoranthene concentrations for these samples have been calculated from the peak area identified as benzo(b)fluoranthene using the appropriate benzo(k)fluoranthene response factor. Both compounds have been reported due to the lack of chromatographic resolution and the reported benzo(b)fluoranthene and benzo(k)fluoranthene concentrations have been qualified as ("JY") indicating the compounds could not be resolved (DJY indicates a diluted sample).
UJ = Not detected above the reported sample quantitation limit; however, the reported limit is approximate and may or may not represent the actual limit of quantitation.
UX = Elevated detection limit as estimated maximum possible concentration.
EDJ = Diluted sample result greater than the calibration range.
EJ = Original sample result greater than the calibration range.
PJ = The amount reported is the estimated maximum possible concentration due to possible chlorinated diphenylether interference.

ARCADIS

**Attachment 2**

Sample Location Maps




**LEGEND:**

- EDGE OF WATER
- DRAINAGE DITCH AND DIRECTION OF FLOW
- APPROXIMATE SOUTHERN DRAINAGE DITCH FLOW PATH DOWNSTREAM OF DEFINED CHANNEL
- PROPERTY BOUNDARY (SEE NOTE 2)
- FENCELINE
- EXISTING CONTOUR LINE
- FORMER PROCESS AREA SURFACE COVER
- SOIL REMOVAL AREA (SOIL/DEBRIS PILES AND SURFICIAL ASPHALT-LIKE MATERIALS)
- PRELIMINARY WETLAND BOUNDARY (SEE NOTE 3)
- PORTIONS OF SOUTHERN DRAINAGE DITCHES THAT HAVE BEEN FILLED IN PRIOR TO OR DURING SURFACE COVER CONSTRUCTION OR REMOVAL OF SOIL AND DEBRIS PILES.
- S1 2005 RESIDENTIAL SAMPLE (USEPA)
- SB-102 2005 SURFACE COVER DELINEATION SAMPLE
- SDD-22 2006/2008 SOUTHERN DRAINAGE DITCHES AREA SAMPLE
- A1-1 DECEMBER 2009 SAMPLE LOCATION
- A1-36 MARCH 2010 SAMPLE LOCATION
- EVALUATION AREA

**NOTES:**

1. SITE FEATURES AND TOPOGRAPHY OBTAINED FROM PHOTOGRAMMETRIC MAPPING PROVIDED BY LOCKWOOD MAPPING COMPANY IN SEPTEMBER 2001 AND SURVEY DATA PROVIDED BY ENGINEERING DESIGN SOURCE, INC. IN JANUARY 2004, AND BASED ON AERIAL PHOTOGRAPHY PROVIDED BY LOCKWOOD MAPPING, INC. TAKEN ON NOVEMBER 22, 1996 AT AN APPROXIMATE SCALE OF 1"=500'. TOPOGRAPHY IN THE EASTERN SOUTHERN DRAINAGE DITCHES AREA BASED ON TOPOGRAPHIC FIELD SURVEY CONDUCTED IN AUGUST 2007.
2. PROPERTY BOUNDARY IS APPROXIMATE; OBTAINED FROM A COMBINATION OF SITE SURVEY DATA, HISTORICAL MAPS AND TAX MAPS.
3. PRELIMINARY WETLAND BOUNDARIES DELINEATED BY ARCADIS IN DECEMBER 2009.

0 300' 600'
GRAPHIC SCALE

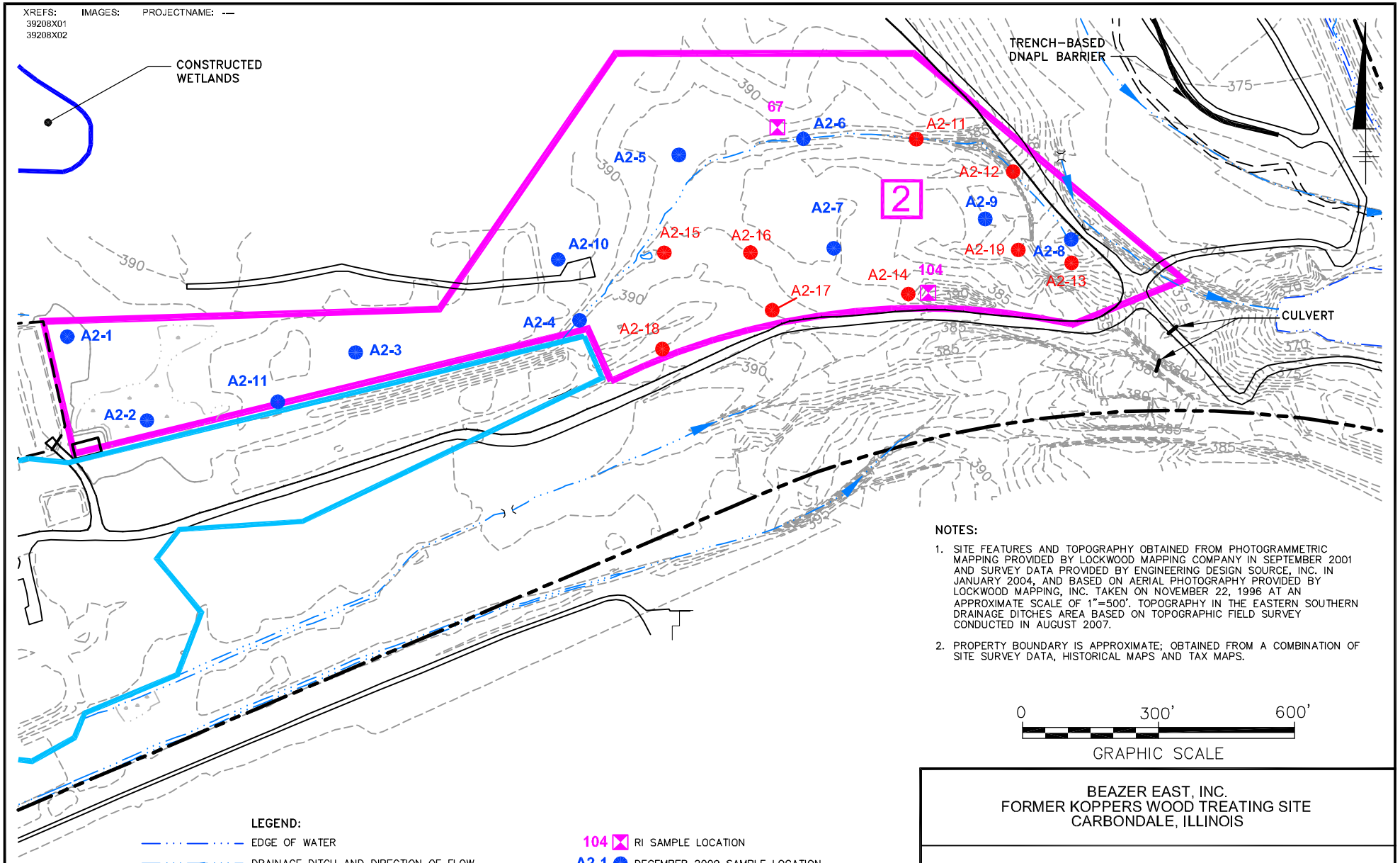
BEAZER EAST, INC.
FORMER KOPPERS WOOD TREATING SITE
CARBONDALE, ILLINOIS

# EVALUATION AREA 1 SAMPLE LOCATIONS

ARCADIS

FIGURE 1

CITY: SYRACUSE DIV/GROUP: ENVCAD DB: L. FORAKER LD: PIC: R. ANDERSON PM: J. HOLDEN TM: J. HOLDEN LYR: ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0039208\0000\00002\DWG\SAMPLE\39208G02.DWG LAYOUT: 2 SAVED: 6/3/2010 10:34 AM ACADVER: 17.0S (LMS TECH) PAGESETUP: C-LA-PDF PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 6/3/2010 10:34 AM BY: FORAKER, LYDIA
XREFS: IMAGES: PROJECTNAME: --
39208X01
39208X02




NOTES:

1. SITE FEATURES AND TOPOGRAPHY OBTAINED FROM PHOTOGRAMMETRIC MAPPING PROVIDED BY LOCKWOOD MAPPING COMPANY IN SEPTEMBER 2001 AND SURVEY DATA PROVIDED BY ENGINEERING DESIGN SOURCE, INC. IN JANUARY 2004, AND BASED ON AERIAL PHOTOGRAPHY PROVIDED BY LOCKWOOD MAPPING, INC. TAKEN ON NOVEMBER 22, 1996 AT AN APPROXIMATE SCALE OF 1"=500'. TOPOGRAPHY IN THE EASTERN SOUTHERN DRAINAGE DITCHES AREA BASED ON TOPOGRAPHIC FIELD SURVEY CONDUCTED IN AUGUST 2007.
2. PROPERTY BOUNDARY IS APPROXIMATE; OBTAINED FROM A COMBINATION OF SITE SURVEY DATA, HISTORICAL MAPS AND TAX MAPS.

0 300' 600'

GRAPHIC SCALE

LEGEND:

- EDGE OF WATER
- DRAINAGE DITCH AND DIRECTION OF FLOW
- PROPERTY BOUNDARY (SEE NOTE 2)
- EXISTING CONTOUR LINE
- FORMER PROCESS AREA SURFACE COVER
- 104 RI SAMPLE LOCATION
- A2-1 DECEMBER 2009 SAMPLE LOCATION
- A2-14 MARCH 2010 SAMPLE LOCATION
- EVALUATION AREA

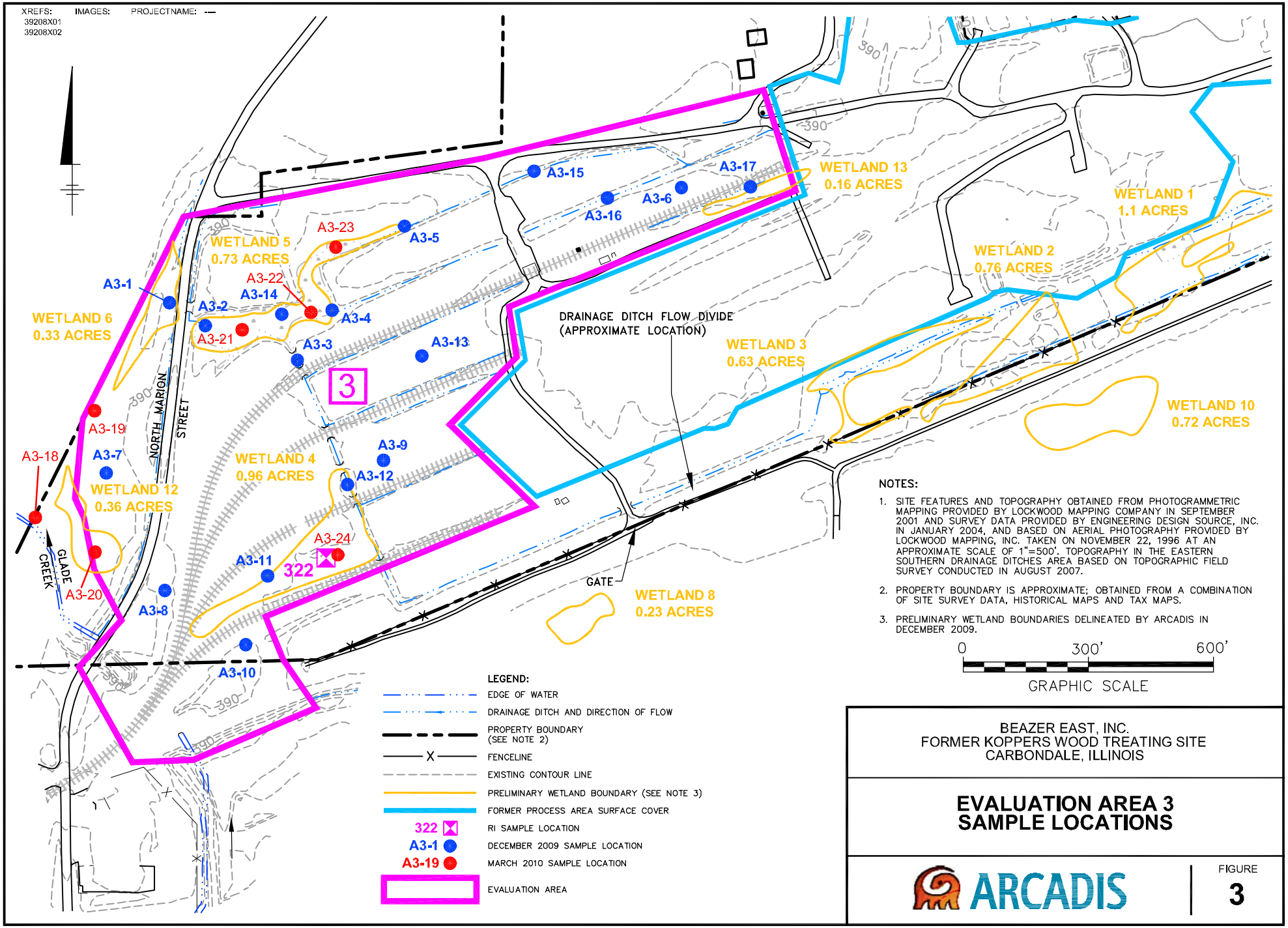
BEAZER EAST, INC.
FORMER KOPPERS WOOD TREATING SITE
CARBONDALE, ILLINOIS

# EVALUATION AREA 2 SAMPLE LOCATIONS

ARCADIS

FIGURE
2

CITY: SYRACUSE DIV/GROUP: ENVCAD DB: L. FORAKER LD: PIC: R. ANDERSON PM: J. HOLDEN TM: J. HOLDEN LYR: ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0039208\0000\00002\DWG\SAMPLE\39208G03.DWG LAYOUT: 3 SAVED: 6/3/2010 10:44 AM ACADVER: 17.0S (LMS TECH) PAGESETUP: C-LA-PDF PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 6/3/2010 10:44 AM BY: FORAKER, LYDIA
XREFS: IMAGES: PROJECTNAME: —
39208X01
39208X02




NOTES:

1. SITE FEATURES AND TOPOGRAPHY OBTAINED FROM PHOTOGRAMMETRIC MAPPING PROVIDED BY LOCKWOOD MAPPING COMPANY IN SEPTEMBER 2001 AND SURVEY DATA PROVIDED BY ENGINEERING DESIGN SOURCE, INC. IN JANUARY 2004, AND BASED ON AERIAL PHOTOGRAPHY PROVIDED BY LOCKWOOD MAPPING, INC. TAKEN ON NOVEMBER 22, 1996 AT AN APPROXIMATE SCALE OF 1"=500'. TOPOGRAPHY IN THE EASTERN SOUTHERN DRAINAGE DITCHES AREA BASED ON TOPOGRAPHIC FIELD SURVEY CONDUCTED IN AUGUST 2007.
2. PROPERTY BOUNDARY IS APPROXIMATE; OBTAINED FROM A COMBINATION OF SITE SURVEY DATA, HISTORICAL MAPS AND TAX MAPS.
3. PRELIMINARY WETLAND BOUNDARIES DELINEATED BY ARCADIS IN DECEMBER 2009.

0 300' 600'

GRAPHIC SCALE

LEGEND:

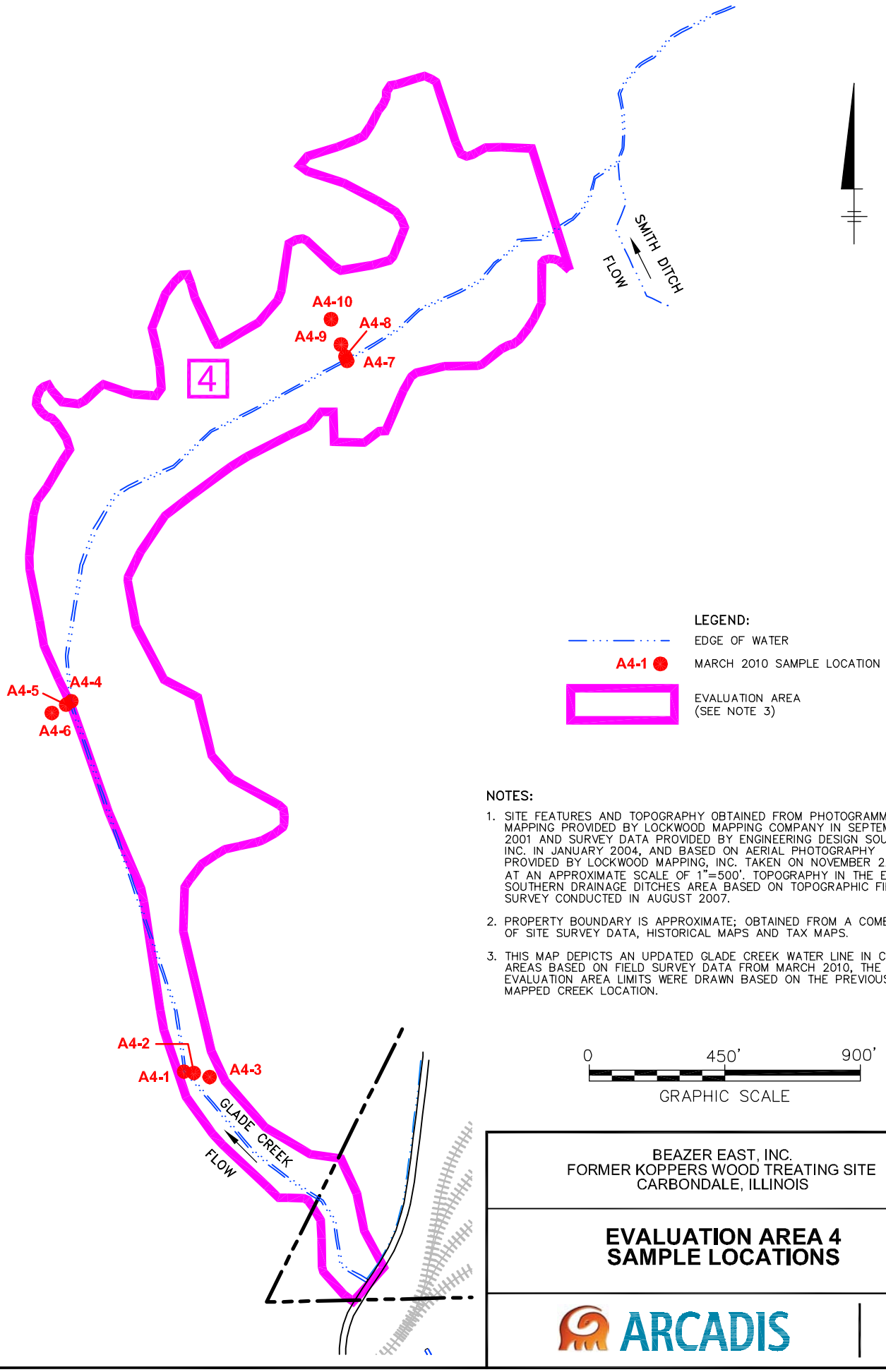
- EDGE OF WATER
- DRAINAGE DITCH AND DIRECTION OF FLOW
- PROPERTY BOUNDARY (SEE NOTE 2)
- FENCELINE
- EXISTING CONTOUR LINE
- PRELIMINARY WETLAND BOUNDARY (SEE NOTE 3)
- FORMER PROCESS AREA SURFACE COVER
- 322 RI SAMPLE LOCATION
- A3-1 DECEMBER 2009 SAMPLE LOCATION
- A3-19 MARCH 2010 SAMPLE LOCATION
- EVALUATION AREA

BEAZER EAST, INC.
FORMER KOPPERS WOOD TREATING SITE
CARBONDALE, ILLINOIS

# EVALUATION AREA 3 SAMPLE LOCATIONS

ARCADIS

FIGURE
3




NOTES:

1. SITE FEATURES AND TOPOGRAPHY OBTAINED FROM PHOTOGRAMMETRIC MAPPING PROVIDED BY LOCKWOOD MAPPING COMPANY IN SEPTEMBER 2001 AND SURVEY DATA PROVIDED BY ENGINEERING DESIGN SOURCE, INC. IN JANUARY 2004, AND BASED ON AERIAL PHOTOGRAPHY PROVIDED BY LOCKWOOD MAPPING, INC. TAKEN ON NOVEMBER 22, 1996 AT AN APPROXIMATE SCALE OF 1"=500'. TOPOGRAPHY IN THE EASTERN SOUTHERN DRAINAGE DITCHES AREA BASED ON TOPOGRAPHIC FIELD SURVEY CONDUCTED IN AUGUST 2007.
2. PROPERTY BOUNDARY IS APPROXIMATE; OBTAINED FROM A COMBINATION OF SITE SURVEY DATA, HISTORICAL MAPS AND TAX MAPS.
3. THIS MAP DEPICTS AN UPDATED GLADE CREEK WATER LINE IN CERTAIN AREAS BASED ON FIELD SURVEY DATA FROM MARCH 2010, THE EVALUATION AREA LIMITS WERE DRAWN BASED ON THE PREVIOUSLY MAPPED CREEK LOCATION.

0 450' 900'
GRAPHIC SCALE

BEAZER EAST, INC.
FORMER KOPPERS WOOD TREATING SITE
CARBONDALE, ILLINOIS

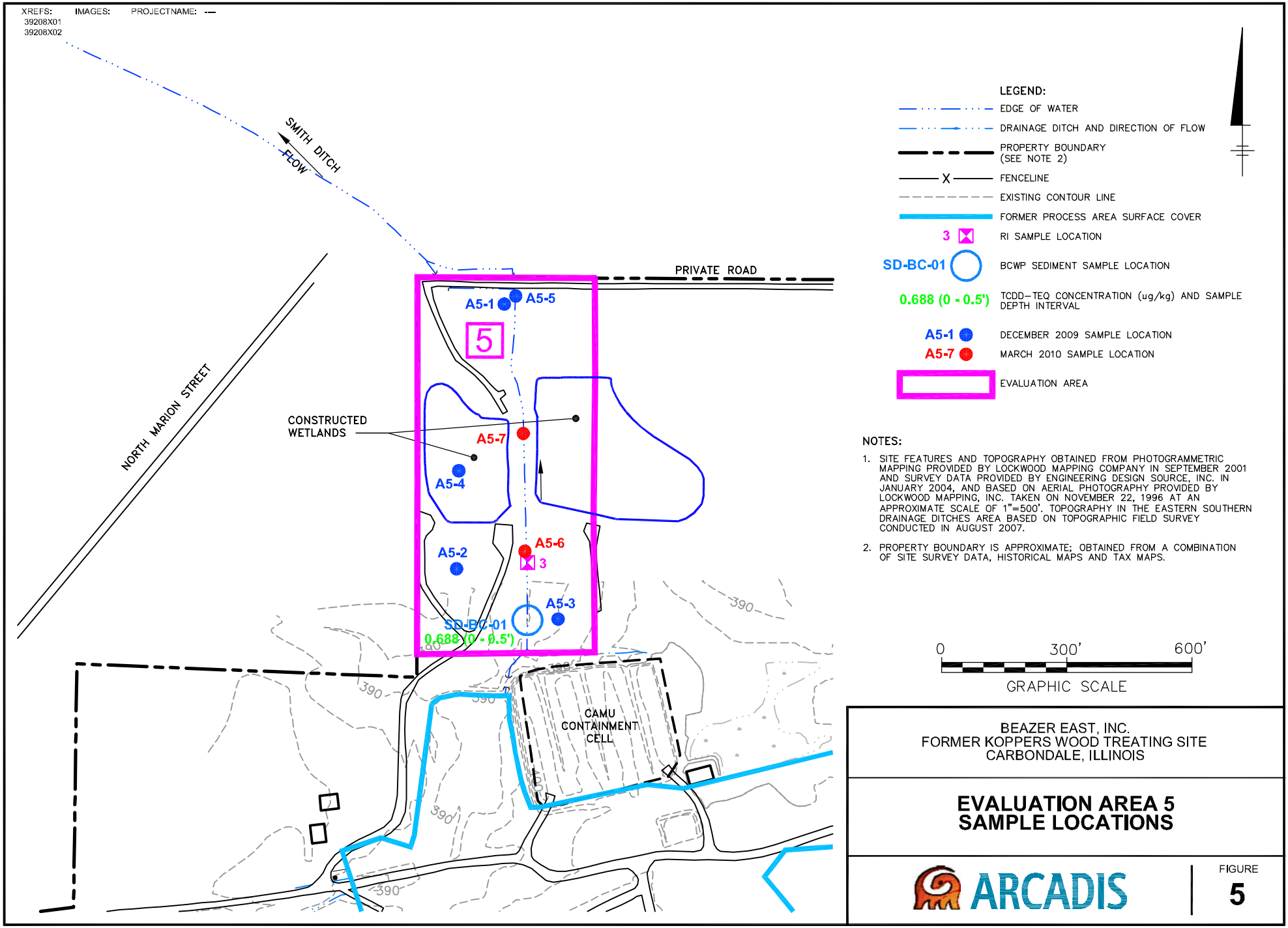
# EVALUATION AREA 4 SAMPLE LOCATIONS

ARCADIS

FIGURE
4

CITY: SYRACUSE DIV/GROUP: ENVCAD DB: L. FORAKER LD: PIC: R. ANDERSON PM: J. HOLDEN TM: J. HOLDEN LYR: ON=*; OFF=*REF*
G:\ENVCAD\SYRACUSE\ACTIVE\003920810\000002\DWG\SAMPLE\392081G04.DWG LAYOUT: 4 SAVED: 6/3/2010 10:35 AM ACADVER: 17.0S (LMS TECH) PAGESETUP: C-PA-PDF PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 6/3/2010 10:35 AM BY: FORAKER, LYDIA
XREFS: IMAGES: PROJECTNAME: —
392081X01

CITY: SYRACUSE DIV/GROUP: ENVCAD DB: L. FORAKER LD: PIC: R. ANDERSON PM: J. HOLDEN TM: J. HOLDEN LYR: ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0039208\0000\00002\DWG\SAMPLE\39208G05.DWG LAYOUT: 5 SAVED: 6/3/2010 10:35 AM ACADVER: 17.0S (LMS TECH) PAGESETUP: C-LA-PDF PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 6/3/2010 10:35 AM BY: FORAKER, LYDIA
XREFS: IMAGES: PROJECTNAME: —
39208X01
39208X02




NOTES:

1. SITE FEATURES AND TOPOGRAPHY OBTAINED FROM PHOTOGRAMMETRIC MAPPING PROVIDED BY LOCKWOOD MAPPING COMPANY IN SEPTEMBER 2001 AND SURVEY DATA PROVIDED BY ENGINEERING DESIGN SOURCE, INC. IN JANUARY 2004, AND BASED ON AERIAL PHOTOGRAPHY PROVIDED BY LOCKWOOD MAPPING, INC. TAKEN ON NOVEMBER 22, 1996 AT AN APPROXIMATE SCALE OF 1"=500'. TOPOGRAPHY IN THE EASTERN SOUTHERN DRAINAGE DITCHES AREA BASED ON TOPOGRAPHIC FIELD SURVEY CONDUCTED IN AUGUST 2007.
2. PROPERTY BOUNDARY IS APPROXIMATE; OBTAINED FROM A COMBINATION OF SITE SURVEY DATA, HISTORICAL MAPS AND TAX MAPS.

0 300' 600'
GRAPHIC SCALE

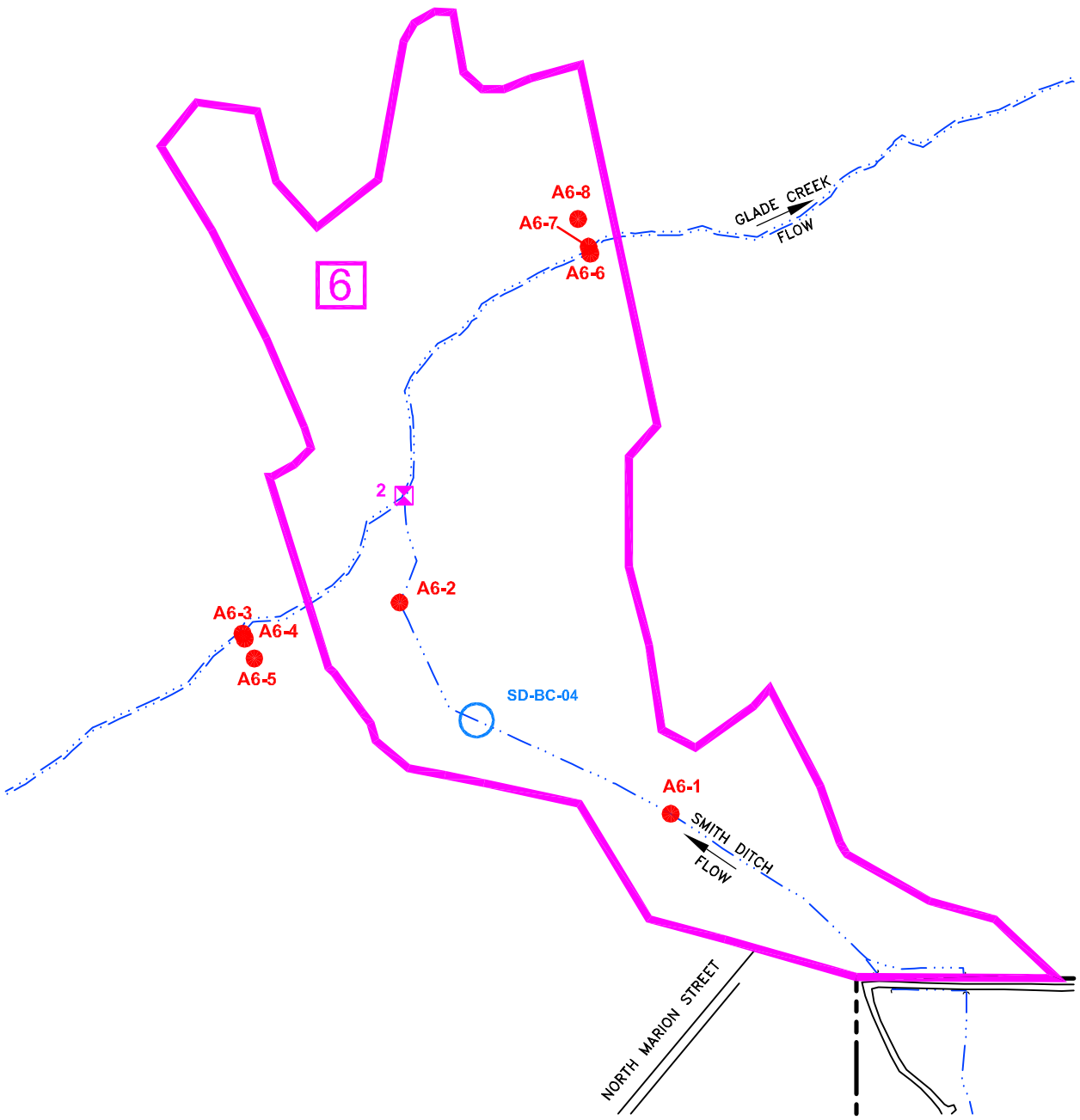
BEAZER EAST, INC.
FORMER KOPPERS WOOD TREATING SITE
CARBONDALE, ILLINOIS

# EVALUATION AREA 5 SAMPLE LOCATIONS

ARCADIS

FIGURE
5

CITY: SYRACUSE DIV/GROUP: ENVCAD DB: L. FORAKER LD: PIC: R. ANDERSON PM: J. HOLDEN TM: J. HOLDEN LYR: ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0039208\0000\00002\DWG\SAMPLE\39208G06.DWG LAYOUT: 6 SAVED: 6/3/2010 10:35 AM ACADVER: 17.0S (LMS TECH) PAGESETUP: C-LA-PDF PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 6/3/2010 10:35 AM BY: FORAKER, LYDIA
XREFS: IMAGES: PROJECTNAME: --
39208X01




**LEGEND:**

- EDGE OF WATER
- 2 — RI SAMPLE LOCATION
- SD-BC-04 — BCWP SEDIMENT SAMPLE LOCATION
- A6-1 — MARCH 2010 SAMPLE LOCATION
- EVALUATION AREA (SEE NOTE 3)

**NOTES:**

1. SITE FEATURES AND TOPOGRAPHY OBTAINED FROM PHOTOGRAMMETRIC MAPPING PROVIDED BY LOCKWOOD MAPPING COMPANY IN SEPTEMBER 2001 AND SURVEY DATA PROVIDED BY ENGINEERING DESIGN SOURCE, INC. IN JANUARY 2004, AND BASED ON AERIAL PHOTOGRAPHY PROVIDED BY LOCKWOOD MAPPING, INC. TAKEN ON NOVEMBER 22, 1996 AT AN APPROXIMATE SCALE OF 1"=500'. TOPOGRAPHY IN THE EASTERN SOUTHERN DRAINAGE DITCHES AREA BASED ON TOPOGRAPHIC FIELD SURVEY CONDUCTED IN AUGUST 2007.
2. PROPERTY BOUNDARY IS APPROXIMATE; OBTAINED FROM A COMBINATION OF SITE SURVEY DATA, HISTORICAL MAPS AND TAX MAPS.
3. THIS MAP DEPICTS UPDATED GLADE CREEK AND SMITH DITCH WATER LINES IN CERTAIN AREAS BASED ON FIELD SURVEY DATA FROM MARCH 2010. THE EVALUATION AREA LIMITS WERE DRAWN BASED ON THE PREVIOUSLY MAPPED CREEK/DITCH LOCATIONS.

0 350' 700'

GRAPHIC SCALE

BEAZER EAST, INC.
FORMER KOPPERS WOOD TREATING SITE
CARBONDALE, ILLINOIS

# EVALUATION AREA 6 SAMPLE LOCATIONS

ARCADIS

FIGURE
6

ARCADIS

**Attachment 3**

Data Validation Reports

ARCADIS
Infrastructure, environment, buildings

Imagine the result

# Beazer East, Inc.
# Former Koppers Wood-Treating Site

## Data Review

CARBONDALE, ILLINOIS

SVOCs, Metals, and TOC

SDG # C0D020489

Analyses Performed By:
TestAmerica Laboratories, Inc.
Pittsburgh, Pennsylvania

Report: # 12082R
Review Level: Tier III
Project: B0039208.0000.00002

ARCADIS

## SUMMARY

The following is an assessment of the data package for Sample Delivery Group (SDG) # C0D020489 for sampling from the Beazer East, Inc. Former Koppers Wood-Treating Site in Carbondale, Illinois. Analyses were performed on the following samples:

| Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | VOC | SVOC | PCB | MET | MISC |
| A2-12 (0-6”) | C0D020489001 | Sediment | 3/29/2010 | | | X | | X | X |
| RB032910 | C0D020489002 | Water | 3/29/2010 | | | X | | X | X |
| A2-11 (0-6”) | C0D020489003 | Sediment | 3/29/2010 | | | X | | X | X |
| A2-13 (0-6”) | C0D020489004 | Soil | 3/29/2010 | | | X | | X | |
| Field Duplicate #1 | C0D020489005 | Soil | 3/29/2010 | A2-13 (0-6”) | | X | | X | |
| A2-14 (0-6”) | C0D020489006 | Soil | 3/29/2010 | | | X | | X | |
| A2-15 (0-6”) | C0D020489007 | Soil | 3/29/2010 | | | X | | X | |
| A2-16 (0-6”) | C0D020489008 | Soil | 3/29/2010 | | | X | | X | |
| A2-17 (0-6”) | C0D020489009 | Soil | 3/29/2010 | | | X | | X | |
| A2-18 (0-6”) | C0D020489010 | Soil | 3/29/2010 | | | X | | X | |
| A2-19 (0-6”) | C0D020489011 | Sediment | 3/29/2010 | | | X | | X | X |
| Field Duplicate #2 | C0D020489012 | Sediment | 3/29/2010 | A2-19 (0-6”) | | X | | X | X |
| NPL (0-6”) | C0D020489013 | Soil | 3/29/2010 | | | X | | X | |
| A5-6 (0-6”) | C0D020489014 | Sediment | 3/30/2010 | | | X | | X | X |
| Field Duplicate #3 | C0D020489015 | Sediment | 3/30/2010 | A5-6 (0-6”) | | X | | X | X |
| A5-7 (0-6”) | C0D020489016 | Sediment | 3/30/2010 | | | X | | X | X |
| A1-37 (0-6”) | C0D020489017 | Soil | 3/30/2010 | | | X | | X | |
| A1-36 (0-6”) | C0D020489018 | Soil | 3/30/2010 | | | X | | X | |
| A1-38 (0-6”) | C0D020489019 | Soil | 3/30/2010 | | | X | | X | |
| A1-39 (0-6”) | C0D020489020 | Soil | 3/30/2010 | | | X | | X | |
| A1-35 (0-6”) | C0D020489021 | Soil | 3/30/2010 | | | X | | X | |
| A1-40 (0-6”) | C0D020489022 | Soil | 3/30/2010 | | | X | | X | |
| A1-41 (0-6”) | C0D020489023 | Soil | 3/30/2010 | | | X | | X | |
| A1-42 (0-6”) | C0D020489024 | Soil | 3/30/2010 | | | X | | X | |
| A1-43 (0-6”) | C0D020489025 | Sediment | 3/30/2010 | | | X | | X | X |
| A1-44 (0-6”) | C0D020489026 | Sediment | 3/30/2010 | | | X | | X | X |
| Field Duplicate #4 | C0D020489027 | Sediment | 3/30/2010 | A1-44 (0-6”) | | X | | X | X |
| A1-47 (0-6”) | C0D020489028 | Sediment | 3/30/2010 | | | X | | X | X |
| A1-45 (0-6”) | C0D020489029 | Soil | 3/30/2010 | | | X | | X | |
| A1-46 (0-6”) | C0D020489030 | Sediment | 3/30/2010 | | | X | | X | X |
| A1-48 (0-6”) | C0D020489031 | Sediment | 3/30/2010 | | | X | | X | X |
| RB033010 | C0D020489032 | Water | 3/30/2010 | | | X | | X | X |

| Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | VOC | SVOC | PCB | MET | MISC |
| RB033110 | C0D020489033 | Water | 3/31/2010 | | | X | | X | X |
| A3-20 (0-6") | C0D020489034 | Sediment | 3/30/2010 | | | X | | X | X |
| Field Duplicate #5 | C0D020489035 | Sediment | 3/30/2010 | A3-20 (0-6") | | X | | X | X |
| A3-18 (0-6") | C0D020489036 | Sediment | 3/30/2010 | | | X | | X | X |
| A3-19 (0-6") | C0D020489037 | Sediment | 3/30/2010 | | | X | | X | X |
| A3-23 (0-6") | C0D020489038 | Sediment | 3/30/2010 | | | X | | X | X |
| A3-22 (0-6") | C0D020489039 | Sediment | 3/30/2010 | | | X | | X | X |
| A3-21 (0-6") | C0D020489040 | Sediment | 3/30/2010 | | | X | | X | X |
| A3-24 (0-6") | C0D020489041 | Sediment | 3/30/2010 | | | X | | X | X |
| A6-1 (0-6") | C0D020489042 | Sediment | 3/31/2010 | | | X | | X | X |
| A6-2 (0-6") | C0D020489043 | Sediment | 3/31/2010 | | | X | | X | X |
| A6-3 (0-6") | C0D020489044 | Sediment | 3/31/2010 | | | X | | X | X |
| A6-4 (0-6") | C0D020489045 | Soil | 3/31/2010 | | | X | | X | |
| A6-5 (0-6") | C0D020489046 | Sediment | 3/31/2010 | | | X | | X | X |
| A4-7 (0-6") | C0D020489047 | Sediment | 3/31/2010 | | | X | | X | X |
| A4-8 (0-6") | C0D020489048 | Soil | 3/31/2010 | | | X | | X | |
| Field Duplicate #6 | C0D020489049 | Soil | 3/31/2010 | A4-8 (0-6") | | X | | X | |
| A4-9 (0-6") | C0D020489050 | Soil | 3/31/2010 | | | X | | X | |
| A4-10 (0-6") | C0D020489051 | Soil | 3/31/2010 | | | X | | X | |
| A6-6 (0-6") | C0D020489052 | Sediment | 3/31/2010 | | | X | | X | X |
| A6-7 (0-6") | C0D020489053 | Soil | 3/31/2010 | | | X | | X | |
| A6-8 (0-6") | C0D020489054 | Soil | 3/31/2010 | | | X | | X | |
| A4-5 (0-6") | C0D020489055 | Soil | 3/31/2010 | | | X | | X | |
| A4-6 (0-6") | C0D020489056 | Sediment | 3/31/2010 | | | X | | X | X |
| A4-4 (0-6") | C0D020489057 | Sediment | 3/31/2010 | | | X | | X | X |
| A4-1 (0-6") | C0D020489058 | Sediment | 3/31/2010 | | | X | | X | X |
| A4-2 (0-6") | C0D020489059 | Soil | 3/31/2010 | | | X | | X | |
| A4-3 (0-6") | C0D020489060 | Soil | 3/31/2010 | | | X | | X | |

1. The matrix spike/matrix spike duplicate (MS/MSD) analyses were performed on sample locations A2-17 (0-6"), A1-43 (0-6"), and A6-1 (0-6").
2. Sample results were reported on a dry-weight basis.

Analyses:

SVOC: Semivolatile Organic Compounds (client specific target compound list) – USEPA SW846 Method 8270C.

MET: Metals (client specific target analyte list) – USEPA SW846 Method 6010B.

MISC: Total Organic Carbon (TOC) – Walkley-Black Method and USEPA SW846 Method 9060.

**ANALYTICAL DATA PACKAGE DOCUMENTATION**

The table below is the evaluation of the data package completeness.

| Items Reviewed | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| 1. Sample receipt condition | | X | | X | |
| 2. Requested analyses and sample results | | X | | X | |
| 3. Master tracking list | | X | | X | |
| 4. Methods of analysis | | X | | X | |
| 5. Reporting limits | | X | | X | |
| 6. Sample collection date | | X | | X | |
| 7. Laboratory sample received date | | X | | X | |
| 8. Sample preservation verification (as applicable) | | X | | X | |
| 9. Sample preparation/extraction/analysis dates | | X | | X | |
| 10. Fully executed Chain-of-Custody (COC) form | | X | | X | |
| 11. Narrative summary of QA or sample problems provided | | X | | X | |
| 12. Data Package Completeness and Compliance | | X | | X | |

QA - Quality Assurance

# SVOCs – INTRODUCTION

Analyses were performed according to United Stated Environmental Protection Agency (USEPA) Method SW846 8270C. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999 and USEPA Region V Standard Operating Procedures (SOPs; USEPA Region V, 1993; 1997).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank; its presence in the sample may be suspect.

- Quantitation Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected as unusable. The analyte may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

# SVOCs – DATA VALIDATION SUMMARY

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| SW-846 8270C | Water | 7 days from collection to extraction and 40 days from extraction to analysis | Cooled @ 4±2 °C |
| | Soil | 14 days from collection to extraction and 40 days from extraction to analysis | Cooled @ 4±2 °C |

All samples were analyzed within the specified holding time criteria.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blank and field equipment rinse blanks) are prepared to identify any contamination that may have been introduced into the samples during sample preparation or field activity. Laboratory method blanks measure laboratory contamination. Equipment rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

SVOC target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

## 3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

## 4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the initial and continuing calibrations were within the specified control limits.

## 5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction (acid or base/neutral) exhibit recoveries within the laboratory-established acceptance limits.

Samples associated with surrogates exhibiting recoveries outside of the control limits are presented in the following table.

| Sample Locations | Surrogate | Recovery |
|---|---|---|
| A2-12 (0-6"), A2-14 (0-6"), A2-15 (0-6"), A2-16 (0-6"), A2-17 (0-6"), A2-19 (0-6"), Field Duplicate #2, A5-7 (0-6"), A1-37 (0-6"), A1-41 (0-6"), A3-22 (0-6"), A3-21 (0-6"), and A3-24 (0-6") | Phenol-$d_5$<br>2-Fluorophenol<br>2,4,6-Tribromophenol<br>Nitrobenzene-$d_5$<br>2-Fluorobiphenyl<br>Terphenyl-$d_{14}$ | D |
| A1-44 (0-6") | Phenol-$d_5$<br>2-Fluorophenol<br>2,4,6-Tribromophenol<br>Nitrobenzene-$d_5$<br>2-Fluorobiphenyl<br>Terphenyl-$d_{14}$ | AC |

D Diluted below detection limit
AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of two surrogate deviations within each fraction, the sample results associated with the deviant fraction are qualified as documented in the table below. In the case of one or more surrogate recoveries in a fraction < 10%, the qualification is applied.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > UL | Non-detect | No Action |
| | Detect | J |
| < LL but > 10% | Non-detect | UJ |
| | Detect | J |
| < 10% | Non-detect | R |
| | Detect | J |
| D – Surrogates diluted below the calibration curve due to high analyte concentrations. | Non-detect | J[1] |
| | Detect | |

[1] A more concentrated analysis was not performed with surrogate compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

## 6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the target SVOCs exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

Samples associated with internal standards exhibiting responses outside of the control limits are presented in the following table.

| Sample Locations | Internal Standard | Response |
|---|---|---|
| A1-41 (0-6"), A1-47 (0-6"), A3-20 (0-6"), Field Duplicate #5, A3-21 (0-6"), A3-24 (0-6") | Chrysene-$d_{12}$ Perylene-$d_{12}$ | > UL |
| A1-46 (0-6"), A3-19 (0-6") | Perylene-$d_{12}$ | > UL |

AC Acceptable

The criteria used to evaluate the internal standard responses are presented in the following table. In the case of an internal standard deviation, the compounds quantitated under the deviant internal standard are qualified as documented in the table below.

| Control limit | Sample Result | Qualification |
|---|---|---|
| > the upper control limit (UL) | Non-detect | No action |
| | Detect | J |
| < the lower control limit (LL) but > 25% | Non-detect | UJ |
| | Detect | J |
| < 25% | Non-detect | R |
| | Detect | J |

Note: No sample results were qualified as unusable (R) due to the deviations listed above.

## 7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

The MS/MSD analyses performed on sample locations A1-43 (0-6) and A6-1 (0-6) exhibited acceptable recoveries. Samples associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

| Sample Locations | Compound | MS Recovery | MSD Recovery |
|---|---|---|---|
| A2-17 (0-6) | All spiked compounds | D | D |

D Diluted below detection limit

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > the upper control limit (UL) | Non-detect | No Action |
| | Detect | J |
| < the lower control limit (LL) but > 10% | Non-detect | UJ |
| | Detect | J |
| D – Surrogates diluted below the calibration curve due to high analyte concentrations. | Non-detect | J[1] |
| | Detect | J[1] |
| < 10% | Non-detect | R |
| | Detect | J |
| Parent sample concentration > four times the MS/MSD spiking solution concentration. | Detect | No Action |
| | Non-detect | |

[1] A more concentrated analysis was not performed with matrix spike compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

The MS/MSD analysis performed on sample location A6-1 (0-6") exhibited acceptable RPDs between the MS and MSD. Samples associated with MS/MSD analyses exhibiting an RPD greater than the control limit are presented in the following table.

| Sample Locations | Compound |
|---|---|
| A2-17 (0-6") | All spiked compounds (RPDs could not be determined due to dilution) |
| A1-43 (0-6") | Pyrene |

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > UL | Non-detect | UJ |
| | Detect | J |

**8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis**

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

## 9. Field Duplicate Sample Analysis

Field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of three times the RL is applied for soil matrices.

Results (in mg/kg) for duplicate samples are summarized in the following table.

| Sample ID/Duplicate ID | Compound | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| A2-13 (0-6")/Field Duplicate #1 | Acenaphthene | 0.0064 J | 0.033 | AC |
| | Acenaphthylene | 0.081 | 0.28 | 110.2 % |
| | Anthracene | 0.091 | 0.17 | 60.5 % |
| | Benzo(a)anthracene | 0.14 | 0.44 | 103.4 % |
| | Benzo(a)pyrene | 0.18 | 0.57 | 104.0 % |
| | Benzo(b)fluoranthene | 0.40 | 0.72 | 57.1 % |
| | Benzo(ghi)perylene | 0.15 | 0.49 | 106.2 % |
| | Benzo(k)fluoranthene | 0.37 | 0.28 | 27.7 % |
| | Chrysene | 0.22 | 0.62 | 95.2 % |
| | Dibenzo(a,h)anthracene | 0.044 | 0.10 | AC |
| | Fluoranthene | 0.26 | 1.4 | 137.3 % |
| | Fluorene | 0.019 U | 0.081 | NC |
| | Indeno(1,2,3-cd)pyrene | 0.13 | 0.40 | 101.8 % |
| | Naphthalene | 0.020 | 0.16 | 155.5 % |
| | Pentachlorophenol | 0.078 J | 0.061 | AC |
| | Phenanthrene | 0.086 | 1.2 | 173.2 % |
| | Pyrene | 0.23 | 1.1 | 130.8 % |
| A2-19 (0-6")/Field Duplicate #2 | Acenaphthene | 0.57 | 0.57 | 0.0 % |
| | Acenaphthylene | 8.9 | 9.2 | 3.3 % |
| | Anthracene | 32 | 26 | 20.6 % |
| | Benzo(a)anthracene | 8.0 | 7.6 | 5.1 % |
| | Benzo(a)pyrene | 17 | 17 | 0.0 % |
| | Benzo(b)fluoranthene | 35 | 43 | 20.5 % |
| | Benzo(ghi)perylene | 15 | 16 | 6.4 % |
| | Benzo(k)fluoranthene | 13 | 39 | 101.0 % |
| | Chrysene | 21 | 17 | 21.0 % |
| | Dibenzo(a,h)anthracene | 5.7 | 5.1 | 11.1 % |
| | Fluoranthene | 11 | 11 | 0.0 % |
| | Fluorene | 3.1 | 1.5 | 69.5 % |
| | Indeno(1,2,3-cd)pyrene | 16 | 16 | 0.0 % |
| | Naphthalene | 1.2 | 1.1 | 8.6 % |
| | Pentachlorophenol | 22 | 20 | 9.5 % |
| | Phenanthrene | 6.0 | 3.0 | 66.6 % |
| | Pyrene | 11 | 11 | 0.0 % |

| Sample ID/Duplicate ID | Compound | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| A5-6 (0-6")/Field Duplicate #3 | Acenaphthene | 0.13 | 0.18 | 32.2 % |
| | Acenaphthylene | 1.8 | 2.6 | 36.3 % |
| | Anthracene | 2.2 | 3.0 | 30.7 % |
| | Benzo(a)anthracene | 1.2 | 1.7 | 34.4 % |
| | Benzo(a)pyrene | 2.3 | 3.6 | 44.0 % |
| | Benzo(b)fluoranthene | 3.3 | 5.5 | 50.0 % |
| | Benzo(ghi)perylene | 2.9 | 4.2 | 36.6 % |
| | Benzo(k)fluoranthene | 1.5 | 1.9 | 23.5 % |
| | Chrysene | 1.7 | 3 | 55.3 % |
| | Dibenzo(a,h)anthracene | 0.67 | 1.1 | 48.5 % |
| | Fluoranthene | 1.5 | 2.2 | 37.8 % |
| | Fluorene | 0.20 | 0.27 | 29.7 % |
| | Indeno(1,2,3-cd)pyrene | 2.4 | 3.6 | 40.0 % |
| | Naphthalene | 0.089 J | 0.14 | 44.5 % |
| | Pentachlorophenol | 0.4 J | 0.53 J | 27.9 % |
| | Phenanthrene | 0.35 | 0.50 | 35.2 % |
| | Pyrene | 1.7 | 2.5 | 38.0 % |
| A1-44 (0-6")/Field Duplicate #4 | Acenaphthene | 0.0097 J | 0.0069 J | AC |
| | Acenaphthylene | 0.062 | 0.067 | 7.7 % |
| | Anthracene | 0.11 | 0.087 | 23.3 % |
| | Benzo(a)anthracene | 0.24 | 0.17 | 34.1 % |
| | Benzo(a)pyrene | 0.17 | 0.16 | 6.0 % |
| | Benzo(b)fluoranthene | 0.31 | 0.29 | 6.6 % |
| | Benzo(ghi)perylene | 0.12 | 0.14 | 15.3 % |
| | Benzo(k)fluoranthene | 0.14 | 0.18 | 25.0 % |
| | Chrysene | 0.28 | 0.24 | 15.3 % |
| | Dibenzo(a,h)anthracene | 0.041 | 0.046 | 11.4 % |
| | Fluoranthene | 0.63 | 0.39 | 47.0 % |
| | Fluorene | 0.0086 J | 0.0086 J | AC |
| | Indeno(1,2,3-cd)pyrene | 0.12 | 0.14 | 15.3 % |
| | Naphthalene | 0.12 | 0.086 | 33.0 % |
| | Pentachlorophenol | 0.021 J | 0.04 J | AC |
| | Phenanthrene | 0.48 | 0.23 | 70.4 % |
| | Pyrene | 0.38 | 0.26 | 37.5 % |

| Sample ID/Duplicate ID | Compound | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| A3-20 (0-6")/Field Duplicate #5 | Acenaphthene | 0.0081 J | 0.0079 J | AC |
| | Acenaphthylene | 0.064 | 0.070 | 8.9 % |
| | Anthracene | 0.074 | 0.082 | 10.2 % |
| | Benzo(a)anthracene | 0.11 | 0.11 | 0.0 % |
| | Benzo(a)pyrene | 0.12 | 0.13 | 8.0 % |
| | Benzo(b)fluoranthene | 0.21 | 0.25 | 17.3 % |
| | Benzo(ghi)perylene | 0.15 | 0.18 | 18.1 % |
| | Benzo(k)fluoranthene | 0.097 | 0.084 | 14.4 % |
| | Chrysene | 0.13 | 0.15 | 14.2 % |
| | Dibenzo(a,h)anthracene | 0.035 | 0.035 | 0.0 % |
| | Fluoranthene | 0.22 | 0.23 | 4.4 % |
| | Fluorene | 0.0097 J | 0.011 J | AC |
| | Indeno(1,2,3-cd)pyrene | 0.13 | 0.16 | 20.6 % |
| | Naphthalene | 0.018 J | 0.016 J | AC |
| | Pentachlorophenol | 0.037 J | 0.053 J | AC |
| | Phenanthrene | 0.074 | 0.073 | 1.3 % |
| | Pyrene | 0.15 | 0.16 | 6.4 % |
| A4-8 (0-6")/Field Duplicate #6 | Acenaphthene | 0.0089 J | 0.02 U | AC |
| | Acenaphthylene | 0.035 | 0.020 | 54.5 % |
| | Anthracene | 0.038 | 0.026 | 37.5 % |
| | Benzo(a)anthracene | 0.11 | 0.081 | 30.3 % |
| | Benzo(a)pyrene | 0.13 | 0.11 | 16.6 % |
| | Benzo(b)fluoranthene | 0.30 | 0.25 | 18.1 % |
| | Benzo(ghi)perylene | 0.14 | 0.12 | 15.3 % |
| | Benzo(k)fluoranthene | 0.26 | 0.22 | 16.7 % |
| | Chrysene | 0.18 | 0.16 | 11.7 % |
| | Dibenzo(a,h)anthracene | 0.030 | 0.029 | 3.3 % |
| | Fluoranthene | 0.26 | 0.23 | 12.2 % |
| | Fluorene | 0.006 J | 0.0066 J | AC |
| | Indeno(1,2,3-cd)pyrene | 0.13 | 0.12 | 8.0 % |
| | Naphthalene | 0.023 | 0.011 J | AC |
| | Phenanthrene | 0.11 | 0.087 | 23.3 % |
| | Pyrene | 0.17 | 0.14 | 19.3 % |

AC Acceptable
ND Not detected
NC Not compliant

The compounds acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(ghi)perylene, fluorene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene associated with sample locations A2-13 (0-6") and Field Duplicate #1 exhibited RPDs and/or differences greater than the control limit. The compound benzo(k)fluoranthene associated with sample locations A2-19 (0-6") and Field Duplicate #2 exhibited a RPD greater than the control limit. The associated sample results from sample locations for the listed compounds were qualified as estimated ("J") or estimated not detected ("UJ").

## 10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. Sample results (in mg/kg) associated with compounds that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table.

| Sample ID | Compound | Original Analysis | Diluted Analysis | Reported Analysis |
|---|---|---|---|---|
| A1-37 (0-6”) | Fluoranthene | 60 E | 85 D | 85 D |
| | Pyrene | 49 E | 58 D | 58 D |
| | Benzo(b)fluoranthene | 51 E | 52 D | 52 D |

Results for compounds that did not exceed the calibration range (flagged "E") from the original analysis of sample location A1-37 (0-6”) have been retained in preference to those from the higher dilution analysis.

Sample results associated with compounds exhibiting concentrations greater than the linear range are qualified as documented in the table below when reported as the final reported sample result.

| Reported Sample Results | Qualification |
|---|---|
| Diluted sample result within calibration range | D |
| Diluted sample result less than the calibration range | DJ |
| Diluted sample result greater than the calibration range | EDJ |
| Original sample result greater than the calibration range | EJ |

The isomers benzo(b)fluoranthene and benzo(k)fluoranthene associated with sample locations A2-11(0-6”), A2-13(0-6”), A2-15(0-6”), A2-16(0-6”), A2-17(0-6”), Field Duplicate #2, A1-37(0-6”), A1-38(0-6”), A1-39(0-6”), A3-23(0-6”), A6-3(0-6”), A4-7(0-6”), A4-8(0-6”), A4-5(0-6”), and Field Duplicate #6 could not be chromatographically resolved from each other. The laboratory quantitated the peak as benzo(b)fluoranthene and reported benzo(k)fluoranthene as non-detect. The benzo(k)fluoranthene concentrations for these sample locations have been calculated from the peak area identified as benzo(b)fluoranthene using the appropriate benzo(k)fluoranthene response factor. Both compounds have been reported due to the lack of chromatographic resolution and the reported benzo(b)fluoranthene and benzo(k)fluoranthene concentrations have been qualified as ("JY") indicating the compounds could not be resolved.

## 11. System Performance and Overall Assessment

Overall system performance was acceptable. Except for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# SVOCs – DATA VALIDATION CHECKLIST

| SVOCs: SW-846 8270 | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS) | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | | X | | X | |
| Laboratory Control Sample (LCS) Accuracy (%R) | | X | | X | |
| Laboratory Control Sample Duplicate (LCSD) %R | | X | | X | |
| LCS/LCSD Precision (RPD) | | X | | X | |
| Matrix Spike (MS) %R | | X | X | | |
| Matrix Spike Duplicate (MSD) %R | | X | X | | |
| MS/MSD RPD | | X | X | | |
| Field/Laboratory Duplicate Sample RPD | | X | X | | |
| Surrogate Spike %R | | X | X | | |
| Dilution Factor | | X | | X | |
| Moisture Content | | X | | X | |
| **Tier III Validation** | | | | | |
| System performance and column resolution | | X | | X | |
| Initial calibration %RSDs | | X | | X | |
| Continuing calibration RRFs | | X | | X | |
| Continuing calibration %Ds | | X | | X | |
| Instrument tune and performance check | | X | | X | |
| Ion abundance criteria for each instrument used | | X | | X | |
| Internal standard | | X | X | | |
| Compound identification and quantitation | | | | | |
| A. Reconstructed ion chromatograms | | X | X | X | |
| B. Quantitation Reports | | X | | X | |
| C. RT of sample compounds within the established RT windows | | X | | X | |
| D. Transcription/calculation errors present | | X | | X | |
| E. Reporting limits adjusted to reflect sample dilutions | | X | | X | |

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

# METALS AND TOC – INTRODUCTION

Analyses were performed according to USEPA SW-846 Method 6010B, 9060, and Walkley-Black method. Data were reviewed in accordance with USEPA National Functional Guidelines of July 2002.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration Qualifiers

  U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.

  B The reported value was obtained from a reading less than the contract-required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).

- Quantitation Qualifiers

  E The reported value is estimated due to the presence of interference.

  N Spiked sample recovery is not within control limits.

  * Duplicate analysis is not within control limits.

- Validation Qualifiers

  J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.

  UB Analyte considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected as unusable. The analyte may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

# METALS – DATA VALIDATION SUMMARY

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| SW-846 6010B | Water | 180 days from collection to analysis | Cooled to 4±2 °C; pH < 2 with $HNO_3$. |
| | Soil | 180 days from collection to analysis | Cooled to 4±2 °C |

All samples were analyzed within the specified holding times.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination that may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Equipment rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant analytes are calculated at ten times) is calculated for QA blanks containing concentrations greater than the instrument detection limit (IDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL. Therefore, qualification of the sample results was unnecessary.

## 3. Calibration

Satisfactory instrument calibration is established to provide that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instruments' continuing performance is satisfactory.

### 3.1 Initial Calibration and Continuing Calibration

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 for all non-ICP analytes and all initial calibration verification standard recoveries were within control limits.

All continuing calibration verification standard recoveries were within the control limit.

### 3.2 CRDL Check Standard

The CRDL check standard serves to verify the linearity of calibration of the analysis at the CRDL. The CRDL standard is not required for the analysis of aluminum (Al), barium (Ba), calcium (Ca), iron (Fe), magnesium (Mg), sodium (Na), and potassium (K). The criteria used to evaluate the CRDL standard analysis are presented below in the CRDL standards evaluation table.

All CRDL standard recoveries were within control limits.

### 3.3 ICP Interference Control Sample (ICS)

The ICS verifies the laboratories inter-element and background correction factors.

All ICS exhibited recoveries within the control limits.

## 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

| Sample Location | Analytical Batch | Analyte | MS Recovery | MSD Recovery |
|---|---|---|---|---|
| A2-17 (0-6") | 0097431 | Chromium | 14 | 29 |

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this analytical batch.

| Control limit | Sample Result | Qualification |
|---|---|---|
| MS/MSD percent recovery 30% to 74% | Non-detect | UJ |
| | Detect | J |
| MS/MSD percent recovery < 30% | Non-detect | R |
| | Detect | J |
| MS/MSD percent recovery > 125% | Non-detect | No Action |
| | Detect | J |

## 5. Field Duplicate Sample Analysis

Field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

| Sample ID/Duplicate ID | Analyte | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| A2-13 (0-6")/Field Duplicate #1 | Arsenic | 12.1 | 12.6 | 4.0 % |
| | Chromium | 17.1 | 19.2 | 11.5 % |
| | Copper | 45.8 | 65 | 34.6 % |
| A2-19 (0-6")/Field Duplicate #2 | Arsenic | 50.4 | 35.8 | 33.8 % |
| | Chromium | 154 | 153 | 0.6 % |
| | Copper | 39 | 42.1 | 7.6 % |
| A5-6 (0-6")/Field Duplicate #3 | Arsenic | 6.5 | 6.4 | 1.5 % |
| | Chromium | 20.2 | 21.2 | 4.8 % |
| | Copper | 24.3 | 26.8 | 9.7 % |
| A1-44 (0-6")/Field Duplicate #4 | Arsenic | 11.6 | 14.1 | 19.4 % |
| | Chromium | 18.6 | 14.5 | 24.7 % |
| | Copper | 12.5 | 12.2 | 2.4 % |
| A3-20 (0-6")/Field Duplicate #5 | Arsenic | 11 | 10.8 | 1.8 % |
| | Chromium | 25.4 | 23.6 | 7.3 % |
| | Copper | 34.1 | 32.4 | 5.1 % |
| A4-8 (0-6")/Field Duplicate #6 | Arsenic | 7.1 | 6.7 | 5.7 % |
| | Chromium | 18.2 | 18.9 | 3.7 % |
| | Copper | 24.6 | 23.8 | 3.3 % |

The calculated RPDs between the parent sample and field duplicate were acceptable.

### 6. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

### 7. Serial Dilution

The serial dilution analysis is used to assess if a significant physical or chemical interference exists due to sample matrix. Analytes exhibiting concentrations greater than 50 times the MDL in the undiluted sample are evaluated to determine if matrix interference exists. These analytes are required to have less than a 10% difference (%D) between sample results from the undiluted (parent) sample and results associated with the same sample analyzed with a five-fold dilution.

Serial dilution analyses were not reported in the data package.

### 8. Furnace Analysis QC

No furnace analyses were performed on the samples.

## 9. Method of Standard Additions (MSA)

No samples were analyzed following the method of standard additions.

## 10. System Performance and Overall Assessment

Overall system performance was acceptable. Except for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# METALS – DATA VALIDTION CHECKLIST

| METALS; SW-846 6000/7000 | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP)<br>Atomic Absorption – Manual Cold Vapor (CV) | | | | | |
| **Tier II Validation** | | | | | |
| Holding Times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Instrument Blanks | | X | | X | |
| B. Method Blanks | | X | | X | |
| C. Equipment/Field Blanks | | X | | X | |
| Laboratory Control Sample (LCS) Accuracy (%R) | | X | | X | |
| Laboratory Control Sample Duplicate (LCSD) %R | | X | | X | |
| LCS/LCSD Precision (RPD) | | X | | X | |
| Matrix Spike (MS) %R | | X | X | | |
| Matrix Spike Duplicate (MSD) %R | | X | X | | |
| MS/MSD RPD | | X | | X | |
| Field/Laboratory Duplicate Sample RPD | | X | | X | |
| ICP Serial Dilution | | | | | X |
| Reporting Limit Verification | | X | | X | |
| Raw Data | | X | | X | |
| **Tier III Validation** | | | | | |
| Initial Calibration Verification | | X | | X | |
| Continuing Calibration Verification | | X | | X | |
| CRDL Standard | | X | | X | |
| ICP Interference Check | | X | | X | |
| Transcription/calculation errors present | | X | | X | |
| Reporting limits adjusted to reflect sample dilutions | | X | | X | |

%R Percent recovery
RPD Relative percent difference

# TOC – DATA VALIDATION CHECKLIST

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| Total Organic Carbon (TOC) by Walkley-Black | Soil | 28 days from collection to analysis | Cooled @ 4±2 °C |
| Total Organic Carbon by USEPA SW846 9060 | Water | 28 days from collection to analysis | Cooled @ 4±2 °C; preserved to pH < 2 with $H_2SO_4$. |

All samples were analyzed within the specified holding times.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination that may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Equipment rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the instrument detection limit (IDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

## 3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The initial calibration must exhibit a correlation coefficient greater than 0.995. A technical review of the data applies limits to all analytes with no exceptions.

All target analytes associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (15%).

All analytes associated with the initial and continuing calibrations were within the specified control limits. The correct frequency and type of standards were analyzed.

## 4. Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to five times the reporting limit (RL). A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. For the cases when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate sample results exhibited RPDs within the control limit.

## 5. Field Duplicate Sample Analysis

Field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of three times the RL is applied for soil matrices.

Results (in mg/kg) for duplicate samples are summarized in the following table.

| Sample ID/Duplicate ID | Analyte | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| A2-19 (0-6")/Field Duplicate #2 | TOC | 31600 | 35000 | 10.2 % |
| A5-6 (0-6")/Field Duplicate #3 | TOC | 28400 | 27700 | 2.4 % |
| A1-44 (0-6")/Field Duplicate #4 | TOC | 24300 | 17400 | 33.0 % |
| A3-20 (0-6")/Field Duplicate #5 | TOC | 28200 | 34900 | 21.2 % |

The calculated RPDs between the field duplicate samples were acceptable.

## 6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

## 7. System Performance and Overall Assessment

Overall system performance was acceptable. Except for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# TOC – DATA VALIDATION CHECKLIST

| General Chemistry: TOC – Walkley-Black<br>TOC – USEPA SW-846 9060 | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| Miscellaneous Instrumentation | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | | X | | X | |
| Laboratory Control Sample (LCS) Accuracy (%R) | | X | | X | |
| Laboratory Control Sample Duplicate (LCSD) %R | | X | | X | |
| LCS/LCSD Precision (RPD) | | X | | X | |
| Matrix Spike (MS) %R | | | | | X |
| Matrix Spike Duplicate (MSD) %R | | | | | X |
| MS/MSD RPD | | | | | X |
| Field/Laboratory Duplicate Sample RPD | | X | | X | |
| Dilution Factor | | X | | X | |
| Moisture Content | | X | | X | |
| **Tier III Validation** | | | | | |
| Initial calibration %RSD or correlation coefficient | | X | | X | |
| Continuing calibration %R | | X | | X | |
| Raw Data | | X | | X | |
| Transcription/calculation errors present | | X | | X | |
| Reporting limits adjusted to reflect sample dilutions | | X | | X | |

%RSD – relative standard deviation
%R – percent recovery
RPD – relative percent difference
%D – difference

VALIDATION PERFORMED BY: Dennis Dyke

SIGNATURE: 

DATE: May 10, 2010

PEER REVIEW: Dennis Capria

DATE: May 17, 2010

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# Beazer East, Inc.
# Former Koppers Wood-Treating Site

## Data Review

CARBONDALE, ILLINOIS

PCDDs/PCDFs Analyses

SDG # 32549

Analyses Performed By:
Vista Analytical Laboratory
El Dorado Hills, California

Report #12083
Review Level: Tier III
Project: B0039208.0000.00002

## SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 32549 for samples collected in association with the Beazer East Inc. Former Koppers Wood-Treating Site in Carbondale, Illinois. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Analyses were performed on the following samples:

| Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis |
|---|---|---|---|---|---|
| | | | | | PCDDs/PCDFs |
| A2-12 (0-6") | 32549-001 | Sediment | 3/29/2010 | | X |
| RB032910 | 32549-002 | Water | 3/29/2010 | | X |
| A2-11 (0-6") | 32549-003 | Sediment | 3/29/2010 | | X |
| A2-13 (0-6") | 32549-004 | Soil | 3/29/2010 | | X |
| Field Duplicate #1 | 32549-005 | Soil | 3/29/2010 | A2-13 (0-6") | X |
| A2-14 (0-6") | 32549-006 | Soil | 3/29/2010 | | X |
| A2-15 (0-6") | 32549-007 | Soil | 3/29/2010 | | X |
| A2-16 (0-6") | 32549-008 | Soil | 3/29/2010 | | X |
| A2-17 (0-6") | 32549-009 | Soil | 3/29/2010 | | X |
| A2-18 (0-6") | 32549-010 | Soil | 3/29/2010 | | X |
| A2-19 (0-6") | 32549-011 | Sediment | 3/29/2010 | | X |
| NPL (0-6") | 32549-012 | Soil | 3/29/2010 | | X |
| A5-6 (0-6") | 32549-013 | Sediment | 3/30/2010 | | X |
| Field Duplicate #2 | 32549-014 | Sediment | 3/30/2010 | A5-6 (0-6") | X |
| A5-7 (0-6") | 32549-015 | Sediment | 3/30/2010 | | X |
| A1-37 (0-6") | 32549-016 | Soil | 3/30/2010 | | X |
| Field Duplicate #3 | 32549-017 | Sediment | 3/30/2010 | A1-37 (0-6") | X |
| A1-36 (0-6") | 32549-018 | Soil | 3/30/2010 | | X |
| A1-38 (0-6") | 32549-019 | Soil | 3/30/2010 | | X |
| A1-39 (0-6") | 32549-020 | Soil | 3/30/2010 | | X |

1. The matrix spike/matrix spike duplicate (MS/MSD) analysis was performed on sample location A2-15 (0-6").
2. Sample results were reported on a dry-weight basis.

## ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

| Items Reviewed | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| 1. Sample receipt condition | | X | | X | |
| 2. Requested analyses and sample results | | X | | X | |
| 3. Master tracking list | | X | | X | |
| 4. Methods of analysis | | X | | X | |
| 5. Reporting limits | | X | | X | |
| 6. Sample collection date | | X | | X | |
| 7. Laboratory sample received date | | X | | X | |
| 8. Sample preservation verification (as applicable) | | X | | X | |
| 9. Sample preparation/extraction/analysis dates | | X | | X | |
| 10. Fully executed Chain-of-Custody (COC) form | | X | | X | |
| 11. Narrative summary of QA or sample problems provided | | X | | X | |
| 12. Data Package Completeness and Compliance | | X | | X | |

QA - Quality Assurance

# PCDDs/PCDFs – INTRODUCTION

Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8290. Data were reviewed in accordance with USEPA National Functional Guidelines of January 2005.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected as unusable. The analyte may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

# PCDDs/PCDFs – DATA VALIDATION SUMMARY

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| SW-846 8290 | Water | 30 days from collection to extraction and 45 days from extraction to analysis | Cooled @ 4±2 °C |
| | Soil | 30 days from collection to extraction and 45 days from extraction to analysis | Cooled @ 4±2 °C |

The samples were received at the laboratory at temperatures that were less than the EPA-recommended criteria. Data qualification is unnecessary because the samples were not frozen. All samples were analyzed within the specified holding times.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Equipment rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were detected in the associated equipment rinse blank; however, the associated sample results were greater than the BAL. Therefore, qualification of the sample results was not required.

## 3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable; system performance and column resolution were acceptable.

## 4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

A maximum relative standard deviation (RSD) of 20% is allowed for all non-labeled compounds (target) and 30% is allowed for all labeled compounds (internal standards and recovery standards)

All target compounds associated with the continuing calibration standard must exhibited percent difference (%D) less than the control limit (20%).

All initial and continuing calibration criteria were within the control limits.

## 5. Internal Standard Performance

All samples to be analyzed for PCDD/PCDF compounds are spiked with internal standards prior to extraction. Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds exhibit recoveries within the control limits of 40% to 135%.

Sample locations associated with internal standards exhibiting responses outside of the control limits are presented in the following table.

| Sample Locations | Internal Standard | Response |
|---|---|---|
| A2-12 (0-6"), A2-11 (0-6"), A2-19 (0-6"), Field Duplicate #2, A5-7 (0-6"), A2-14 (0-6"), A2-16 (0-6"), and A2-17 (0-6") | $^{13}$C-OCDD | > UL |
| Field Duplicate #2, A5-7 (0-6"), A2-17 (0-6") | $^{13}$C-OCDF | > UL |
| A5-7 (0-6") | $^{13}$C-1,2,3,4,6,7,8-HpCDD | > UL |

The criteria used to evaluate the internal standard responses are presented in the following table. In the case of an internal standard deviation, the compounds quantitated using the deviant internal standard are qualified as documented in the table below.

| Control limit | Sample Result | Qualification |
|---|---|---|
| > the upper control limit (UL) | Non-detect | No action |
| | Detect | J |

## 6. Recovery Standard Performance

The recovery standard ($^{37}$Cl-2,3,7,8-TCDD) is added to the sample extract prior to the extract clean-up steps. The concentrations of the labeled standards (internal standards) are determined using the recovery standard.

All recovery standard recoveries were acceptable.

## 7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds spiked in the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent differences (RPDs) between the MS and MSD must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compounds concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPDs.

## 8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit recoveries within the laboratory-established acceptance limits.

All compounds associated with the LCS analyses exhibited recoveries within the control limits.

## 9. Field Duplicate Sample Analysis

Field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 100% for soil matrices is applied to the RPD between the parent and the field duplicate samples. In the case where the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results (in mg/kg) for field duplicate samples are summarized in the following table.

| Sample ID/Duplicate ID | Compound | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| A2-13 (0-6") / Field Duplicate #1 | 1,2,3,4,6,7,8-HpCDD | 0.001 | 0.00257 | 87.9 % |
| | 1,2,3,4,6,7,8-HpCDF | 0.000251 | 0.000611 | 83.5 % |
| | 1,2,3,4,7,8,9-HpCDF | 0.0000164 | 0.0000395 | 82.6 % |
| | 1,2,3,4,7,8-HxCDD | 0.0000132 | 0.00003 | 77.7 % |
| | 1,2,3,4,7,8-HxCDF | 0.00000839 | 0.0000218 | 88.8 % |
| | 1,2,3,6,7,8-HxCDD | 0.000029 | 0.0000726 | 85.8 % |
| | 1,2,3,6,7,8-HxCDF | 0.00000332 J | 0.00000842 | 86.8 % |
| | 1,2,3,7,8,9-HxCDD | 0.0000125 | 0.0000308 | 84.5 % |
| | 1,2,3,7,8,9-HxCDF | 0.00000188 J | 0.0000048 J | 87.4 % |
| | 1,2,3,7,8-PeCDD | 0.00000363 J | 0.00000755 | 70.1 % |
| | 1,2,3,7,8-PeCDF | 0.00000085 U | 0.00000292 J | AC |
| | 2,3,4,6,7,8-HxCDF | 0.00000683 | 0.0000161 | 80.8 % |
| | 2,3,4,7,8-PeCDF | 0.00000287 J | 0.00000715 | 85.4 % |
| | 2,3,7,8-TCDD | 0.00000048 J | 0.000000768 J | 46.1 % |
| | 2,3,7,8-TCDF | 0.00000123 | 0.00000226 | 59.0 % |
| | OCDD | 0.0135 E | 0.0351 E | 88.8 % |
| | OCDF | 0.00135 | 0.00319 | 81.0 % |
| | Total HpCDD | 0.00202 | 0.00564 | 94.5 % |
| | Total HpCDF | 0.00126 | 0.00337 | 91.1 % |
| | Total HxCDD | 0.00028 | 0.000778 | 94.1 % |
| | Total HxCDF | 0.000262 | 0.000729 | 94.2 % |
| | Total PeCDD | 0.000108 | 0.000207 | 62.8 % |
| | Total PeCDF | 0.0000315 | 0.000085 | 91.8 % |
| | Total TCDD | 0.0000926 | 0.000119 | 24.9 % |
| | Total TCDF | 0.0000233 | 0.0000478 | 68.9 % |
| | WHO TEQ (Human/ Mammal-NDs Excluded) | 0.0000297 | 0.0000729 | 84.2 % |
| | WHO TEQ (Human/ Mammal-NDs = 1/2 DL) | 0.0000297 | 0.0000729 | 84.2 % |

| Sample ID/Duplicate ID | Compound | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| A5-6 (0-6") / Field Duplicate #2 | 1,2,3,4,6,7,8-HpCDD | 0.0099 E | 0.015 E | 40.9% |
| | 1,2,3,4,6,7,8-HpCDF | 0.00138 | 0.00235 | 52.0% |
| | 1,2,3,4,7,8,9-HpCDF | 0.000118 | 0.000173 | 37.8% |
| | 1,2,3,4,7,8-HxCDD | 0.0000812 | 0.000121 | 39.3% |
| | 1,2,3,4,7,8-HxCDF | 0.0000763 | 0.000105 | 31.6% |
| | 1,2,3,6,7,8-HxCDD | 0.000277 | 0.000405 | 37.5% |
| | 1,2,3,6,7,8-HxCDF | 0.0000246 | 0.0000361 | 37.8% |
| | 1,2,3,7,8,9-HxCDD | 0.000123 | 0.00019 | 42.8% |
| | 1,2,3,7,8,9-HxCDF | 0.0000224 | 0.0000256 | 13.3% |
| | 1,2,3,7,8-PeCDD | 0.0000325 | 0.0000443 | 30.7% |
| | 1,2,3,7,8-PeCDF | 0.00000621 | 0.00000719 | 14.6% |
| | 2,3,4,6,7,8-HxCDF | 0.0000615 | 0.0000779 | 23.5% |
| | 2,3,4,7,8-PeCDF | 0.0000355 | 0.0000416 | 15.8% |
| | 2,3,7,8-TCDD | 0.00000399 | 0.00000434 | 8.4% |
| | 2,3,7,8-TCDF | 0.00000155 | 0.00000188 | 19.2% |
| | OCDD | 0.0949 E | 0.167 D,E | 55.0% |
| | OCDF | 0.00743 | 0.00896 E | 18.6% |
| | Total HpCDD | 0.0255 | 0.037 | 36.8% |
| | Total HpCDF | 0.00856 | 0.0128 | 39.7% |
| | Total HxCDD | 0.00291 | 0.00368 | 23.3% |
| | Total HxCDF | 0.00229 | 0.00268 | 15.6% |
| | Total PeCDD | 0.000325 | 0.000414 | 24.0% |
| | Total PeCDF | 0.000304 P | 0.000352 P | 14.6% |
| | Total TCDD | 0.0000642 | 0.0000664 | 3.3% |
| | Total TCDF | 0.000041 P | 0.0000473 P | 14.2% |
| | WHO TEQ (Human/ Mammal-NDs Excluded) | 0.000259 | 0.000386 | 39.3% |
| | WHO TEQ (Human/ Mammal-NDs = 1/2 DL) | 0.000259 | 0.000386 | 39.3% |
| A1-37 (0-6") / Field Duplicate #3 | 1,2,3,4,6,7,8-HpCDD | 0.0106 | 0.0154 E | 36.9% |
| | 1,2,3,4,6,7,8-HpCDF | 0.00329 | 0.0054 E | 48.5% |
| | 1,2,3,4,7,8,9-HpCDF | 0.000347 | 0.000558 | 46.6% |
| | 1,2,3,4,7,8-HxCDD | 0.0000471 J | 0.0000668 | 34.5% |
| | 1,2,3,4,7,8-HxCDF | 0.0000933 | 0.000137 | 37.9% |
| | 1,2,3,6,7,8-HxCDD | 0.000351 | 0.000542 | 42.7% |
| | 1,2,3,6,7,8-HxCDF | 0.0000394 J | 0.0000364 | 7.9% |
| | 1,2,3,7,8,9-HxCDD | 0.0000669 | 0.000114 | 52.0% |
| | 1,2,3,7,8,9-HxCDF | 0.0000152 U | 0.0000231 | AC |
| | 1,2,3,7,8-PeCDD | 0.0000127 J | 0.0000165 | 26.0% |
| | 1,2,3,7,8-PeCDF | 0.00000544 U | 0.00000287 J | AC |
| | 2,3,4,6,7,8-HxCDF | 0.0000969 | 0.000128 | 27.6% |
| | 2,3,4,7,8-PeCDF | 0.00000611 U | 0.0000101 | AC |

| Sample ID/Duplicate ID | Compound | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| A1-37 (0-6") / Field Duplicate #3 (continued) | 2,3,7,8-TCDD | 0.00000212 U | 0.00000191 | AC |
| | 2,3,7,8-TCDF | 0.00000252 U | 0.00000144 | AC |
| | OCDD | 0.086 | 0.146 *,E | 51.7% |
| | OCDF | 0.0272 | 0.0413 E | 41.1% |
| | Total HpCDD | 0.0205 | 0.0271 | 27.7% |
| | Total HpCDF | 0.0295 | 0.0522 | 55.5% |
| | Total HxCDD | 0.00204 | 0.00287 | 33.8% |
| | Total HxCDF | 0.00497 | 0.00789 P | 45.4% |
| | Total PeCDD | 0.0000506 | 0.000123 | 83.4% |
| | Total PeCDF | 0.000178 | 0.000172 P | 3.4% |
| | Total TCDD | 0.0000339 | 0.0000598 | 55.2% |
| | Total TCDF | 0.0000236 | 0.0000675 | 96.3% |
| | WHO TEQ (Human/ Mammal-NDs Excluded) | 0.000258 | 0.000396 | 42.2% |
| | WHO TEQ (Human/ Mammal-NDs = 1/2 DL) | 0.000261 | 0.000396 | 41.0% |

AC Acceptable

The calculated RPDs between the field duplicate samples were acceptable.

### 10. Compound Identification

PCDD/PCDF compounds are identified by using the compound's ion abundance ratios, signal-to-noise ratios, and retention times relative to the internal standards'.

An estimated maximum possible concentration (EMPC) designation is given to compounds which have signals eluting within the established retention time window which would, if positively identified, be greater than the detection limit. The signals do not, however, meet the ion abundance ratio criteria and therefore cannot be identified as the compound of interest. The EMPC value is the estimated concentration of the interferant quantitated "as the compound of interest". This value should be considered an elevated detection limit based on potential compound identification and quantitation interference. The "UX" qualifier has been added to the following sample results (in mg/kg) to indicate the elevated detection limit as EMPC.

| Sample ID | Compound | Laboratory Result | Reported Result |
|---|---|---|---|
| A2-13 (0-6") | 1,2,3,7,8-PeCDF | 0.000000850 EMPC | 0.000000850 UX |
| A1-36 (0-6") | 1,2,3,7,8-PeCDD | 0.000000697 EMPC | 0.000000697 UX |
| | 1,2,3,6,7,8-HxCDF | 0.000000971 EMPC | 0.000000971 UX |
| A1-39 (0-6") | 2,3,7,8-TCDD | 0.00000134 EMPC | 0.00000134 UX |
| A2-16 (0-6") | 2,3,7,8-TCDF | 0.00000752 EMPC | 0.00000752 UX |
| A2-18 (0-6") | 1,2,3,7,8-PeCDD | 0.0000483 EMPC | 0.0000483 UX |
| A1-37 (0-6") | 2,3,7,8-TCDD | 0.00000212 EMPC | 0.00000212 UX |
| | 2,3,4,7,8-PeCDF | 0.00000611 EMPC | 0.00000611 UX |

The following results exhibited evidence of interference by chlorodiphenyl ethers. The results were flagged "P" by the laboratory indicating the result is the maximum concentrations of the analytes in the case that all of the quantified area is due to the target analyte and none due to the interference. Therefore, these results have been qualified as estimated ("J").

| Sample ID | Compound |
|---|---|
| A2-12 (0-6") | 1,2,3,6,7,8-HxCDF<br>Total TCDF<br>Total PeCDF<br>Total HxCDF |
| A2-11 (0-6"), A2-19 (0-6"), A2-15 (0-6") | Total TCDF<br>Total PeCDF<br>Total HxCDF |
| A5-6 (0-6"), Field Duplicate #2, A5-7 (0-6") | Total TCDF<br>Total PeCDF |
| Field Duplicate #3, A2-14 (0-6") | Total PeCDF<br>Total HxCDF |
| A2-16 (0-6"), A2-17 (0-6") | Total HxCDF |

Sample results that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table (mg/kg). Note: In the instance where both the original analysis and the diluted analysis sample results exhibited a concentration greater than and/or less than the calibration linear range of the instrument; the sample result exhibiting the greatest concentration will be reported as the final result. Because the individual isomer results are included in the Total (hexa-, hepta-) results, where the isomer result has been qualified as estimated ("J") and constitutes greater than ten percent of the Total, the corresponding Total result has been qualified as estimated as well.

| Sample ID | Compound | Original Analysis | Diluted Analysis | Reported Analysis |
|---|---|---|---|---|
| A2-12 (0-6") | 1,2,3,4,6,7,8-HpCDD | 0.148 E | — | 0.148 EJ |
| | OCDD | 0.627 E | — | 0.627 EJ |
| | 1,2,3,4,6,7,8-HpCDF | 0.0247 E | — | 0.0247 EJ |
| | OCDF | 0.119 E | — | 0.119 EJ |
| | Total HpCDD | 0.355 | — | 0.355 J |
| | Total HpCDF | 0.141 | — | 0.141 J |
| A2-11 (0-6") | OCDD | 0.573 ED | — | 0.573 EDJ |
| | 1,2,3,4,6,7,8-HpCDF | 0.0121 E | — | 0.0121 EJ |
| | OCDF | 0.0613 E | — | 0.0613 EJ |
| | Total HpCDF | 0.0731 | — | 0.0731 J |
| A2-19 (0-6") | 1,2,3,6,7,8-HxCDD | 0.00697 E | — | 0.00697 EJ |
| | 1,2,3,4,6,7,8-HpCDD | 0.262 ED | — | 0.262 EDJ |
| | OCDD | 0.709 ED | — | 0.709 EDJ |
| | 1,2,3,4,6,7,8-HpCDF | 0.0381 E | — | 0.0381 EJ |
| | OCDF | 0.186 E | — | 0.186 EJ |
| | Total HxCDD | 0.0601 | — | 0.0601 J |
| | Total HpCDD | 0.620 | — | 0.620 J |
| | Total HpCDF | 0.210 | — | 0.210 J |
| A5-6 (0-6") | 1,2,3,4,6,7,8-HpCDD | 0.0099 E | — | 0.0099 EJ |
| | OCDD | 0.0949 E | — | 0.0949 EJ |
| | Total HpCDD | 0.0255 | — | 0.0255 J |
| Field Duplicate #2 | 1,2,3,4,6,7,8-HpCDD | 0.015 E | — | 0.015 EJ |
| | OCDD | 0.167 ED | — | 0.167 EDJ |
| | OCDF | 0.00896 E | — | 0.00896 EJ |
| | Total HpCDD | 0.0370 | — | 0.0370 J |

| Sample ID | Compound | Original Analysis | Diluted Analysis | Reported Analysis |
|---|---|---|---|---|
| A5-7 (0-6") | 1,2,3,4,6,7,8-HpCDD | 0.0235 E | — | 0.0235 EJ |
| | OCDD | 0.214 ED | — | 0.214 EDJ |
| | 1,2,3,4,6,7,8-HpCDF | 0.00434 E | — | 0.00434 EJ |
| | OCDF | 0.0178 E | — | 0.0178 EJ |
| | Total HpCDD | 0.0543 | — | 0.0543 J |
| | Total HpCDF | 0.0277 | — | 0.0277 J |
| A2-13 (0-6") | OCDD | 0.0135 E | — | 0.0135 EJ |
| Field Duplicate #1 | OCDD | 0.0351 E | — | 0.0351 EJ |
| A2-15 (0-6") | 1,2,3,4,6,7,8-HpCDD | 0.0798 ED | — | 0.0798 EDJ |
| | OCDD | 0.537 ED | — | 0.537 EDJ |
| | 1,2,3,4,6,7,8-HpCDF | 0.0105 E | — | 0.0105 EJ |
| | Total HpCDD | 0.235 D | — | 0.235 DJ |
| | Total HpCDF | 0.0727 | — | 0.0727 J |
| Field Duplicate #3 | 1,2,3,4,6,7,8-HpCDD | 0.0154 E | — | 0.0154 EJ |
| | OCDD | 0.146 E | — | 0.146 EJ |
| | 1,2,3,4,6,7,8-HpCDF | 0.00054 E | — | 0.00054 EJ |
| | OCDF | 0.0413 E | — | 0.0413 EJ |
| | Total HpCDD | 0.0271 | — | 0.0271 J |
| | Total HpCDF | 0.0522 | — | 0.0522 J |
| A1-36 (0-6") | OCDD | 0.00883 E | — | 0.00883 EJ |
| A1-39 (0-6") | OCDD | 0.0308 E | — | 0.0308 EJ |
| A2-14 (0-6") | 1,2,3,4,6,7,8-HpCDD | 0.296 E | — | 0.296 EJ |
| | OCDD | 4.85 ED | — | 4.85 EDJ |
| | OCDF | 0.202 E | — | 0.202 EJ |
| | Total HpCDD | 0.570 | — | 0.570 J |
| A2-16 (0-6") | 1,2,3,4,6,7,8-HpCDD | 0.252 E | — | 0.252 EJ |
| | OCDD | 3.27 ED | — | 3.27 EDJ |
| | OCDF | 0.158 E | — | 0.158 EJ |
| | Total HpCDD | 0.757 | — | 0.757 J |
| A2-17 (0-6") | 1,2,3,4,6,7,8-HpCDD | 0.181 ED | — | 0.181 EDJ |
| | OCDD | 2.63 ED | — | 2.63 EDJ |
| | OCDF | 0.130 E | — | 0.130 EJ |
| | Total HpCDD | 0.368 | — | 0.368 J |
| A2-18 (0-6") | OCDD | 0.583 E | — | 0.583 EJ |

Sample results associated with compounds exhibiting concentration greater than the linear range qualified as documented in the table below when reported as the final reported sample result.

| Reported Sample Results | Qualification |
|---|---|
| Diluted sample result within calibration range | D |
| Diluted sample result less than the calibration range | DJ |
| Diluted sample result greater than the calibration range | EDJ |
| Original sample result greater than the calibration range | EJ |

## 11. System Performance and Overall Assessment

Overall system performance was acceptable. Except for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

## PCDDs/PCDFs – DATA VALIDATION CHECKLIST

| PCDDs/PCDFs; SW-846 8290 | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS) | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | | X | | X | |
| Laboratory Control Sample (LCS) Accuracy (%R) | | X | | X | |
| Laboratory Control Sample Duplicate (LCSD) %R | | | | | X |
| LCS/LCSD Precision (RPD) | | | | | X |
| Matrix Spike (MS) %R | | X | | X | |
| Matrix Spike Duplicate (MSD) %R | | X | | X | |
| MS/MSD RPD | | X | | X | |
| Field/Laboratory Duplicate Sample RPD | | X | | X | |
| Dilution Factor | | X | | X | |
| Moisture Content | | X | | X | |
| **Tier III Validation** | | | | | |
| System performance and column resolution | | X | | X | |
| Initial calibration %RSDs | | X | | X | |
| Continuing calibration %Ds | | X | | X | |
| Instrument tune and performance check | | X | | X | |
| Ion abundance criteria for each instrument used | | X | | X | |
| Signal-to-noise ratio $\geq$ 10:1 | | X | | X | |
| Internal standard performance | | X | X | | |
| Recovery standard performance | | X | | X | |
| Resolution mix $\leq$ 25% | | X | | X | |
| Compound identification and quantitation | | | | | |
| A. Reconstructed ion chromatograms | | X | | X | |
| B. Quantitation Reports | | X | | X | |
| C. RT of sample compounds within the established RT windows | | X | | X | |
| D. Transcription/calculation errors present | | X | | X | |
| E. Reporting limits adjusted to reflect sample dilutions | | X | | X | |

RSD – relative standard deviation
%R - percent recovery
RPD - relative percent difference
%D – difference

VALIDATION PERFORMED BY: Dennis Dyke

SIGNATURE: 

DATE: May 11, 2010

PEER REVIEW: Dennis Capria

DATE: May 17, 2010

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# Beazer East, Inc.
# Former Koppers Wood-Treating Site

## Data Review

CARBONDALE, ILLINOIS

PCDDs/PCDFS Analyses

SDG # 32550

Analyses Performed By:
Vista Analytical Laboratory
El Dorado Hills, California

Report #12089
Review Level: Tier III
Project: B0039208.0000.00002

## SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 32550 for samples collected in association with the Beazer East Inc. Former Koppers Wood-Treating Site in Carbondale, Illinois. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Analyses were performed on the following samples:

| Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis |
|---|---|---|---|---|---|
| | | | | | PCDDs/PCDFs |
| RB033010 | 32550-001 | Water | 3/30/2010 | | X |
| RB033110 | 32550-002 | Water | 3/31/2010 | | X |
| A1-35 (0-6”) | 32550-003 | Soil | 3/30/2010 | | X |
| A1-40 (0-6”) | 32550-004 | Soil | 3/30/2010 | | X |
| A1-41 (0-6”) | 32550-005 | Soil | 3/30/2010 | | X |
| A1-42 (0-6”) | 32550-006 | Soil | 3/30/2010 | | X |
| A1-43 (0-6”) | 32550-007 | Sediment | 3/30/2010 | | X |
| A1-44 (0-6”) | 32550-008 | Sediment | 3/30/2010 | | X |
| A1-47 (0-6”) | 32550-009 | Sediment | 3/30/2010 | | X |
| A1-45 (0-6”) | 32550-010 | Soil | 3/30/2010 | | X |
| A1-46 (0-6”) | 32550-011 | Sediment | 3/30/2010 | | X |
| A1-48 (0-6”) | 32550-012 | Sediment | 3/30/2010 | | X |
| A3-20 (0-6”) | 32550-013 | Sediment | 3/30/2010 | | X |
| Field Duplicate #4 | 32550-014 | Sediment | 3/30/2010 | A3-20 (0-6”) | X |
| A3-18 (0-6”) | 32550-015 | Sediment | 3/30/2010 | | X |
| A3-19 (0-6”) | 32550-016 | Sediment | 3/30/2010 | | X |
| A3-23 (0-6”) | 32550-017 | Sediment | 3/30/2010 | | X |
| A3-22 (0-6”) | 32550-018 | Sediment | 3/30/2010 | | X |
| A3-21 (0-6”) | 32550-019 | Sediment | 3/30/2010 | | X |
| A3-24 (0-6”) | 32550-020 | Sediment | 3/30/2010 | | X |

1. The matrix spike/matrix spike duplicate (MS/MSD) analysis was performed on sample location A1-48 (0-6”).
2. Sample results were reported on a dry-weight basis.

## ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

| Items Reviewed | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| 1. Sample receipt condition | | X | | X | |
| 2. Requested analyses and sample results | | X | | X | |
| 3. Master tracking list | | X | | X | |
| 4. Methods of analysis | | X | | X | |
| 5. Reporting limits | | X | | X | |
| 6. Sample collection date | | X | | X | |
| 7. Laboratory sample received date | | X | | X | |
| 8. Sample preservation verification (as applicable) | | X | | X | |
| 9. Sample preparation/extraction/analysis dates | | X | | X | |
| 10. Fully executed Chain-of-Custody (COC) form | | X | | X | |
| 11. Narrative summary of QA or sample problems provided | | X | | X | |
| 12. Data Package Completeness and Compliance | | X | | X | |

QA - Quality Assurance

# PCDDs/PCDFs – INTRODUCTION

Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8290. Data were reviewed in accordance with USEPA National Functional Guidelines of January 2005.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected as unusable. The analyte may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

# PCDDs/PCDFs – DATA VALIDATION SUMMARY

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| SW-846 8290 | Water | 30 days from collection to extraction and 45 days from extraction to analysis | Cooled @ 4±2 °C |
| | Soil | 30 days from collection to extraction and 45 days from extraction to analysis | Cooled @ 4±2 °C |

The samples were received at the laboratory at temperatures that were less than the EPA-recommended criteria. Data qualification is unnecessary because the samples were not frozen. All samples were analyzed within the specified holding times.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Equipment rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were detected in the associated equipment rinse blanks; however, the associated sample results were either greater than the BAL or non-detect. Therefore, qualification of the sample results was not required.

## 3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable; system performance and column resolution were acceptable.

## 4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

A maximum relative standard deviation (RSD) of 20% is allowed for all non-labeled compounds (target) and 30% is allowed for all labeled compounds (internal standards and recovery standards)

All target compounds associated with the continuing calibration standard must exhibited percent difference (%D) less than the control limit (20%).

All initial and continuing calibration criteria were within the control limits.

## 5. Internal Standard Performance

All samples to be analyzed for PCDD/PCDF compounds are spiked with internal standards prior to extraction. Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds exhibit recoveries within the control limits of 40% to 135%.

Sample locations associated with internal standards exhibiting responses outside of the control limits are presented in the following table.

| Sample Locations | Internal Standard | Response |
|---|---|---|
| A3-22 (0-6") and A3-21 (0-6") | $^{13}$C-OCDD | > UL |

The criteria used to evaluate the internal standard responses are presented in the following table. In the case of an internal standard deviation, the compounds quantitated using the deviant internal standard are qualified as documented in the table below.

| Control limit | Sample Result | Qualification |
|---|---|---|
| > the upper control limit (UL) | Non-detect | No action |
| | Detect | J |

## 6. Recovery Standard Performance

The recovery standard ($^{37}$Cl-2,3,7,8-TCDD) is added to the sample extract prior to the extract clean-up steps. The concentrations of the labeled standards (internal standards) are determined using the recovery standard.

All recovery standard recoveries were acceptable.

## 7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds spiked in the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent differences (RPDs) between the MS and MSD must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compounds concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

| Sample Locations | Compound | MS Recovery | MSD Recovery |
|---|---|---|---|
| A1-48 (0-6") | 1,2,3,6,7,8-HxCDD | < LL but > 10% | < LL but > 10% |
| | 1,2,3,4,7,8-HxCDF | < 10% | < 10% |
| | 2,3,4,7,8-PeCDF | AC | < LL but > 10% |

AC = Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > the upper control limit (UL) | Non-detect | No Action |
| | Detect | J |
| < the lower control limit (LL) but > 10% | Non-detect | J |
| | Detect | J |
| < 10% | Non-detect | R |
| | Detect | J |

The MS/MSD exhibited acceptable RPDs between the MS and MSD.

## 8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit recoveries within the laboratory-established acceptance limits.

All compounds associated with the LCS analyses exhibited recoveries within the control limits.

## 9. Field Duplicate Sample Analysis

Field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 100% for soil matrices is applied to the RPD between the parent and the field duplicate samples. In the case where the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results (in mg/kg) for the field duplicate samples are summarized in the following table.

| Sample ID/Duplicate ID | Compound | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| A3-20 (0-6") / Field Duplicate #4 | 1,2,3,4,6,7,8-HpCDD | 0.00415 E | 0.00443 E | 6.5% |
| | 1,2,3,4,6,7,8-HpCDF | 0.000815 | 0.000925 | 12.6% |
| | 1,2,3,4,7,8,9-HpCDF | 0.0000607 | 0.0000672 | 10.1% |
| | 1,2,3,4,7,8-HxCDD | 0.0000377 | 0.0000408 | 7.8% |
| | 1,2,3,4,7,8-HxCDF | 0.0000465 | 0.0000542 | 15.2% |
| | 1,2,3,6,7,8-HxCDD | 0.000118 | 0.000133 | 11.9% |

| Sample ID/Duplicate ID | Compound | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| A3-20 (0-6") / Field Duplicate #4 (Continued) | 1,2,3,6,7,8-HxCDF | 0.0000223 | 0.0000233 | 4.3% |
| | 1,2,3,7,8,9-HxCDD | 0.0000699 | 0.0000725 | 3.6% |
| | 1,2,3,7,8,9-HxCDF | 0.000011 | 0.0000119 | 7.8% |
| | 1,2,3,7,8-PeCDD | 0.0000144 | 0.0000162 | 11.7% |
| | 1,2,3,7,8-PeCDF | 0.00000377 J | 0.00000447 J | 16.9% |
| | 2,3,4,6,7,8-HxCDF | 0.000041 | 0.0000489 | 17.5% |
| | 2,3,4,7,8-PeCDF | 0.0000256 | 0.0000306 | 17.7% |
| | 2,3,7,8-TCDD | 0.0000018 U | 0.00000243 | AC |
| | 2,3,7,8-TCDF | 0.0000019 | 0.00000264 | 32.5% |
| | OCDD | 0.0491 E | 0.0518 E | 5.3% |
| | OCDF | 0.00366 | 0.00395 | 7.6% |
| | Total HpCDD | 0.00851 | 0.00898 | 5.3% |
| | Total HpCDF | 0.00391 | 0.0042 | 7.1% |
| | Total HxCDD | 0.000884 | 0.00097 | 9.2% |
| | Total HxCDF | 0.000991 | 0.00113 | 13.1% |
| | Total PeCDD | 0.000108 | 0.000114 | 5.4% |
| | Total PeCDF | 0.000277 | 0.000309 | 10.9% |
| | Total TCDD | 0.0000251 | 0.0000285 | 12.6% |
| | Total TCDF | 0.0000691 | 0.0000818 | 16.8% |
| | WHO TEQ (Human/ Mammal-NDs Excluded) | 0.000123 | 0.000138 | 11.4% |
| | WHO TEQ (Human/ Mammal-NDs = 1/2 DL) | 0.000124 | 0.000138 | 10.6% |

AC Acceptable

The calculated RPDs between the field duplicate samples were acceptable.

## 10. Compound Identification

PCDD/PCDF compounds are identified by using the compound's ion abundance ratios, signal-to-noise ratios, and retention times relative to the internal standards'.

An estimated maximum possible concentration (EMPC) designation is given to compounds which have signals eluting within the established retention time window which would, if positively identified, be greater than the detection limit. The signals do not, however, meet the ion abundance ratio criteria and therefore cannot be identified as the compound of interest. The EMPC value is the estimated concentration of the interferant quantitated "as the compound of interest". This value should be considered an elevated detection limit based on potential compound identification and quantitation interference. The "UX" qualifier has been added to the following sample results (in mg/kg) to indicate the elevated detection limit as EMPC.

| Sample ID | Compound | Laboratory Result | Reported Result |
|---|---|---|---|
| A1-35 (0-6") | 1,2,3,7,8-PeCDD | 0.00000146 EMPC | 0.00000146 UX |
| | 2,3,7,8-TCDF | 0.000000831 EMPC | 0.000000831 UX |
| | 1,2,3,7,8-PeCDF | 0.000000705 EMPC | 0.000000705 UX |
| | 2,3,4,6,7,8-HxCDF | 0.00000168 EMPC | 0.00000168 UX |
| A1-40 (0-6") | 1,2,3,7,8-PeCDD | 0.00000290 EMPC | 0.00000290 UX |
| | 2,3,7,8-TCDF | 0.000000478 EMPC | 0.000000478 UX |
| A1-41 (0-6") | 1,2,3,7,8-PeCDF | 0.00000108 EMPC | 0.00000108 UX |
| A1-42 (0-6") | 2,3,7,8-TCDD | 0.000000316 EMPC | 0.000000316 UX |
| | 1,2,3,7,8-PeCDD | 0.000000882 EMPC | 0.000000882 UX |
| | 1,2,3,4,7,8-HxCDD | 0.00000189 EMPC | 0.00000189 UX |
| | 2,3,4,7,8-PeCDF | 0.000000778 EMPC | 0.000000778 UX |
| | 1,2,3,4,7,8,9-HpCDF | 0.000000888 EMPC | 0.000000888 UX |
| A1-43 (0-6") | 2,3,7,8-TCDD | 0.000000334 EMPC | 0.000000334 UX |
| | Total TCDD | 0.000000334 EMPC | 0.000000334 UX |
| | Total PeCDD | 0.00000234 EMPC | 0.00000234 UX |
| | Total PeCDF | 0.000000446 EMPC | 0.000000446 UX |
| A1-47 (0-6") | 1,2,3,4,7,8-HxCDD | 0.00000166 EMPC | 0.00000166 UX |
| | 2,3,7,8-TCDF | 0.000000716 EMPC | 0.000000716 UX |
| | Total TCDD | 0.000000282 EMPC | 0.000000282 UX |
| A1-45 (0-6") | 2,3,7,8-TCDD | 0.000000676 EMPC | 0.000000676 UX |
| | Total TCDD | 0.000000676 EMPC | 0.000000676 UX |
| A1-46 (0-6") | Total TCDF | 0.000000639 EMPC | 0.000000639 UX |
| A3-20 (0-6") | 2,3,7,8-TCDD | 0.00000180 EMPC | 0.00000180 UX |
| A3-18 (0-6") | 1,2,3,6,7,8-HxCDD | 0.00000269 EMPC | 0.00000269 UX |
| | Total TCDF | 0.000000365 EMPC | 0.000000365 UX |
| A3-19 (0-6") | 2,3,7,8-TCDD | 0.000000854 EMPC | 0.000000854 UX |
| | 1,2,3,7,8-PeCDF | 0.00000245 EMPC | 0.00000245 UX |

The following results exhibited evidence of interference by chlorodiphenyl ethers. The results were flagged "P" by the laboratory indicating the result is the maximum concentrations of the analytes in the case that all of the quantified area is due to the target analyte and none due to the interference. Therefore, these results have been qualified as estimated ("J").

| Sample ID | Compound |
|---|---|
| A3-21 (0-6") | Total PeCDF<br>Total HxCDF |
| A3-24 (0-6") | Total TCDF<br>Total PeCDF |

Sample results that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table (mg/kg). Note: In the instance where both the original analysis and the diluted analysis sample results exhibited a concentration greater than and/or less than the calibration linear range of the instrument; the sample result exhibiting the greatest concentration will be reported as the final result. Because the individual isomer results are included in the Total (hexa-, hepta-) results, where the isomer result has been qualified as estimated ("J") and constitutes greater than ten percent of the Total, the corresponding Total result has been qualified as estimated as well.

| Sample ID | Compound | Original Analysis | Diluted Analysis | Reported Analysis |
|---|---|---|---|---|
| A1-35 (0-6") | OCDD | 0.0125 E | — | 0.0125 EJ |
| A1-41 (0-6") | OCDD | 0.0283 E | — | 0.0283 EJ |
| A1-42 (0-6") | OCDD | 0.00928 E | — | 0.00928 EJ |
| A1-44 (0-6") | OCDD | 0.0103 E | — | 0.0103 EJ |
| A1-48 (0-6") | 1,2,3,4,6,7,8-HpCDD | 0.00613 E | — | 0.00613 EJ |
| | OCDD | 0.0891 ED | — | 0.0891 EDJ |
| | Total HpCDD | 0.0123 | — | 0.0123 J |
| A3-20 (0-6") | 1,2,3,4,6,7,8-HpCDD | 0.00415 E | — | 0.00415 EJ |
| | OCDD | 0.0491 E | — | 0.0491 EJ |
| | Total HpCDD | 0.00851 | — | 0.00851 J |
| Field Duplicate #4 | 1,2,3,4,6,7,8-HpCDD | 0.00443 E | — | 0.00443 EJ |
| | OCDD | 0.0518 E | — | 0.0518 EJ |
| | Total HpCDD | 0.00898 | — | 0.00898 J |
| A3-19 (0-6") | OCDD | 0.0238 E | — | 0.0238 EJ |
| A3-23 (0-6") | 1,2,3,4,6,7,8-HpCDD | 0.0172 E | — | 0.0172 EJ |
| | OCDD | 0.137 ED | — | 0.137 EDJ |
| | 1,2,3,4,6,7,8-HpCDF | 0.00451 E | — | 0.00451 EJ |
| | OCDF | 0.0189 E | — | 0.0189 EJ |
| | Total HpCDD | 0.0447 | — | 0.0447 J |
| | Total HpCDF | 0.0316 | — | 0.0316 J |
| A3-22 (0-6") | 1,2,3,4,6,7,8-HpCDD | 0.105 ED | — | 0.105 EDJ |
| | OCDD | 0.471 ED | — | 0.471 EDJ |
| | 1,2,3,4,6,7,8-HpCDF | 0.0237 E | — | 0.0237 EJ |
| | OCDF | 0.0982 E | — | 0.0982 EJ |
| | Total HpCDD | 0.223 | — | 0.223 J |
| | Total HpCDF | 0.150 | — | 0.150 J |
| A3-21 (0-6") | 1,2,3,6,7,8-HxCDD | 0.0496 E | — | 0.0496 EJ |
| | 1,2,3,4,6,7,8-HpCDD | 0.160 ED | — | 0.160 EDJ |
| | OCDD | 0.570 ED | — | 0.570 EDJ |
| | 1,2,3,4,6,7,8-HpCDF | 0.0406 E | — | 0.0406 EJ |
| | OCDF | 0.207 E | — | 0.207 EJ |
| | Total HxCDD | 0.0473 | — | 0.0473 J |
| | Total HpCDD | 0.365 | — | 0.365 J |
| | Total HpCDF | 0.277 | — | 0.277 J |
| A3-24 (0-6") | 1,2,3,4,6,7,8-HpCDD | 0.117 ED | — | 0.117 EDJ |
| | OCDD | 0.524 ED | — | 0.524 EDJ |
| | 1,2,3,4,7,8-HxCDF | 0.00774 E | — | 0.00774 EJ |
| | 1,2,3,4,6,7,8-HpCDF | 0.0268 E | — | 0.0268 EJ |
| | OCDF | 0.100 E | — | 0.100 EJ |
| | Total HpCDD | 0.241 | — | 0.241 J |
| | Total HxCDF | 0.0622 | — | 0.0622 J |
| | Total HpCDF | 0.161 | — | 0.161 J |

Sample results associated with compounds exhibiting concentration greater than the linear range qualified as documented in the table below when reported as the final reported sample result.

| Reported Sample Results | Qualification |
|---|---|
| Diluted sample result within calibration range | D |
| Diluted sample result less than the calibration range | DJ |
| Diluted sample result greater than the calibration range | EDJ |
| Original sample result greater than the calibration range | EJ |

## 11. System Performance and Overall Assessment

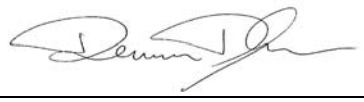
Overall system performance was acceptable. Except for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

## PCDDs/PCDFs – DATA VALIDATION CHECKLIST

| PCDDs/PCDFs; SW-846 8290 | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS) | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | | X | | X | |
| Laboratory Control Sample (LCS) Accuracy (%R) | | X | | X | |
| Laboratory Control Sample Duplicate (LCSD) %R | | | | | X |
| LCS/LCSD Precision (RPD) | | | | | X |
| Matrix Spike (MS) %R | | X | X | | |
| Matrix Spike Duplicate (MSD) %R | | X | X | | |
| MS/MSD RPD | | X | | X | |
| Field/Laboratory Duplicate Sample RPD | | X | | X | |
| Dilution Factor | | X | | X | |
| Moisture Content | | X | | X | |
| **Tier III Validation** | | | | | |
| System performance and column resolution | | X | | X | |
| Initial calibration %RSDs | | X | | X | |
| Continuing calibration %Ds | | X | | X | |
| Instrument tune and performance check | | X | | X | |
| Ion abundance criteria for each instrument used | | X | | X | |
| Signal-to-noise ratio $\geq$ 10:1 | | X | | X | |
| Internal standard performance | | X | X | | |
| Recovery standard performance | | X | | X | |
| Resolution mix $\leq$ 25% | | X | | X | |
| Compound identification and quantitation | | | | | |
| A. Reconstructed ion chromatograms | | X | | X | |
| B. Quantitation Reports | | X | | X | |
| C. RT of sample compounds within the established RT windows | | X | | X | |
| D. Transcription/calculation errors present | | X | | X | |
| E. Reporting limits adjusted to reflect sample dilutions | | X | | X | |

RSD – relative standard deviation
%R - percent recovery
RPD - relative percent difference
%D – difference

VALIDATION PERFORMED BY: Dennis Dyke

SIGNATURE: 

DATE: May 11, 2010

PEER REVIEW: Dennis Capria

DATE: May 17, 2010

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# Beazer East, Inc.
# Former Koppers Wood-Treating Site

## Data Review

CARBONDALE, ILLINOIS

PCDDs/PCDFs Analyses

SDG # 32551

Analyses Performed By:
Vista Analytical Laboratory
El Dorado Hills, California

Report #12090
Review Level: Tier III
Project: B0039208.0000.00002

## SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 32551 for samples collected in association with the Beazer East Inc. Former Koppers Wood-Treating Site in Carbondale, Illinois. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Analyses were performed on the following samples:

| Sample ID | Lab ID | Matrix | Sample Collection Date | Parent Sample | Analysis |
|---|---|---|---|---|---|
| | | | | | PCDDs/PCDFs |
| A6-1 (0-6") | 32551-001 | Sediment | 3/31/2010 | | X |
| A6-2 (0-6") | 32551-002 | Sediment | 3/31/2010 | | X |
| A6-3 (0-6") | 32551-003 | Sediment | 3/31/2010 | | X |
| A6-4 (0-6") | 32551-004 | Soil | 3/31/2010 | | X |
| A6-5 (0-6") | 32551-005 | Sediment | 3/31/2010 | | X |
| Field Duplicate #5 | 32551-006 | Soil | 3/31/2010 | A6-5 (0-6") | X |
| A4-7 (0-6") | 32551-007 | Sediment | 3/31/2010 | | X |
| A4-8 (0-6") | 32551-008 | Soil | 3/31/2010 | | X |
| Field Duplicate #6 | 32551-009 | Soil | 3/31/2010 | A4-8 (0-6") | X |
| A4-9 (0-6") | 32551-010 | Soil | 3/31/2010 | | X |
| A4-10 (0-6") | 32551-011 | Soil | 3/31/2010 | | X |
| A6-6 (0-6") | 32551-012 | Sediment | 3/31/2010 | | X |
| A6-7 (0-6") | 32551-013 | Soil | 3/31/2010 | | X |
| A6-8 (0-6") | 32551-014 | Soil | 3/31/2010 | | X |
| A4-5 (0-6") | 32551-015 | Soil | 3/31/2010 | | X |
| A4-6 (0-6") | 32551-016 | Sediment | 3/31/2010 | | X |
| A4-4 (0-6") | 32551-017 | Sediment | 3/31/2010 | | X |
| A4-1 (0-6") | 32551-018 | Sediment | 3/31/2010 | | X |
| A4-2 (0-6") | 32551-019 | Soil | 3/31/2010 | | X |
| A4-3 (0-6") | 32551-020 | Soil | 3/31/2010 | | X |

1. The matrix spike/matrix spike duplicate (MS/MSD) analysis was performed on sample location A6-1 (0-6").
2. Sample results were reported on a dry-weight basis.

## ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

| Items Reviewed | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| 1. Sample receipt condition | | X | | X | |
| 2. Requested analyses and sample results | | X | | X | |
| 3. Master tracking list | | X | | X | |
| 4. Methods of analysis | | X | | X | |
| 5. Reporting limits | | X | | X | |
| 6. Sample collection date | | X | | X | |
| 7. Laboratory sample received date | | X | | X | |
| 8. Sample preservation verification (as applicable) | | X | | X | |
| 9. Sample preparation/extraction/analysis dates | | X | | X | |
| 10. Fully executed Chain-of-Custody (COC) form | | X | | X | |
| 11. Narrative summary of QA or sample problems provided | | X | | X | |
| 12. Data Package Completeness and Compliance | | X | | X | |

QA - Quality Assurance

# PCDDs/PCDFs – INTRODUCTION

Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8290. Data were reviewed in accordance with USEPA National Functional Guidelines of January 2005.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected as unusable. The analyte may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

# PCDDs/PCDFs – DATA VALIDATION SUMMARY

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method | Matrix | Holding Time | Preservation |
|---|---|---|---|
| SW-846 8290 | Water | 30 days from collection to extraction and 45 days from extraction to analysis | Cooled @ 4±2 °C |
| | Soil | 30 days from collection to extraction and 45 days from extraction to analysis | Cooled @ 4±2 °C |

The samples were received at the laboratory at temperatures that were less than the EPA-recommended criteria. Data qualification is unnecessary because the samples were not frozen. All samples were analyzed within the specified holding times.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Equipment rinse blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were detected in the associated equipment rinse blank (which was analyzed with SDG 32550); however, the associated sample results were either greater than the BAL or non-detect. Therefore, qualification of the sample results was not required.

## 3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable; system performance and column resolution were acceptable.

## 4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

A maximum relative standard deviation (RSD) of 20% is allowed for all non-labeled compounds (target) and 30% is allowed for all labeled compounds (internal standards and recovery standards)

All target compounds associated with the continuing calibration standard must exhibited percent difference (%D) less than the control limit (20%).

All initial and continuing calibration criteria were within the control limits.

## 5. Internal Standard Performance

All samples to be analyzed for PCDD/PCDF compounds are spiked with internal standards prior to extraction. Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds exhibit recoveries within the control limits of 40% to 135%.

All internal standard areas and retention times were within established limits.

## 6. Recovery Standard Performance

The recovery standard ($^{37}$Cl-2,3,7,8-TCDD) is added to the sample extract prior to the extract clean-up steps. The concentrations of the labeled standards (internal standards) are determined using the recovery standard.

All recovery standard recoveries were acceptable.

## 7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds spiked in the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent differences (RPDs) between the MS and MSD must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compounds concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

| Sample Locations | Compound | MS Recovery | MSD Recovery |
|---|---|---|---|
| A6-1 (0-6”) | 1,2,3,4,6,7,8-HpCDF | > UL | < LL but > 10% |

AC = Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

| Control Limit | Sample Result | Qualification |
|---|---|---|
| > the upper control limit (UL) | Non-detect | No Action |
| | Detect | J |
| < the lower control limit (LL) but > 10% | Non-detect | J |
| | Detect | J |
| < 10% | Non-detect | R |
| | Detect | J |

The MS/MSD exhibited acceptable RPDs between the MS and MSD.

## 8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit recoveries within the laboratory-established acceptance limits.

All compounds associated with the LCS analyses exhibited recoveries within the control limits.

## 9. Field Duplicate Sample Analysis

Field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 100% for soil matrices is applied to the RPD between the parent and the field duplicate samples. In the case where the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results (in mg/kg) for the field duplicate samples are summarized in the following table.

| Sample ID/Duplicate ID | Compound | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| A6-5 (0-6") / Field Duplicate #5 | 1,2,3,4,6,7,8-HpCDD | 0.0000916 | 0.0000975 | 6.2% |
| | 1,2,3,4,6,7,8-HpCDF | 0.00000565 | 0.00000748 | 27.8% |
| | 1,2,3,4,7,8-HxCDD | 0.00000179 J | 0.0000012 U | AC |
| | 1,2,3,6,7,8-HxCDD | 0.00000266 J | 0.00000261 U | AC |
| | 1,2,3,7,8,9-HxCDD | 0.00000258 J | 0.00000254 J | 1.5% |
| | 1,2,3,7,8-PeCDD | 0.000000786 J | 0.000000701 J | 11.4% |
| | 2,3,4,6,7,8-HxCDF | 0.00000054 J | 0.000000621 J | 13.9% |
| | 2,3,4,7,8-PeCDF | 0.00000102 J | 0.000000761 J | 29.0% |
| | OCDD | 0.00284 | 0.00324 | 13.1% |
| | OCDF | 0.0000207 | 0.0000259 | 22.3% |
| | Total HpCDD | 0.000221 | 0.000226 | 2.2% |
| | Total HpCDF | 0.0000223 | 0.0000259 | 14.9% |
| | Total HxCDD | 0.0000332 | 0.0000267 | 21.7% |
| | Total HxCDF | 0.00000805 | 0.00000798 | 0.8% |
| | Total PeCDD | 0.00000781 | 0.00000212 | 114.6% |
| | Total PeCDF | 0.00000719 | 0.00000313 | 78.6% |
| | Total TCDD | 0.000000729 | 0.000000506 U | AC |
| | Total TCDF | 0.00000196 | 0.000000775 | 86.6% |
| | WHO TEQ (Human/ Mammal-NDs Excluded) | 0.00000368 | 0.00000327 | 11.7% |
| | WHO TEQ (Human/ Mammal-NDs = 1/2 DL) | 0.00000395 | 0.00000376 | 4.9% |
| A4-8 (0-6") / Field Duplicate #6 | 1,2,3,4,6,7,8-HpCDD | 0.000474 | 0.000431 | 9.5% |
| | 1,2,3,4,6,7,8-HpCDF | 0.0000824 | 0.0000751 | 9.2% |
| | 1,2,3,4,7,8,9-HpCDF | 0.00000579 | 0.00000603 | 4.0% |
| | 1,2,3,4,7,8-HxCDD | 0.00000766 | 0.00000705 | 8.2% |
| | 1,2,3,4,7,8-HxCDF | 0.00000521 | 0.00000428 J | 19.5% |
| | 1,2,3,6,7,8-HxCDD | 0.000016 | 0.0000137 | 15.4% |
| | 1,2,3,6,7,8-HxCDF | 0.00000348 J | 0.00000311 J | 11.2% |

| Sample ID/Duplicate ID | Compound | Sample Result | Duplicate Result | RPD |
|---|---|---|---|---|
| A4-8 (0-6") / Field Duplicate #6 (continued) | 1,2,3,7,8,9-HxCDD | 0.0000131 | 0.0000114 | 13.8% |
| | 1,2,3,7,8,9-HxCDF | 0.00000137 J | 0.00000126 J | 8.3% |
| | 1,2,3,7,8-PeCDD | 0.00000348 J | 0.00000341 J | 2.0% |
| | 1,2,3,7,8-PeCDF | 0.000000528 J | 0.000000691 J | 26.7% |
| | 2,3,4,6,7,8-HxCDF | 0.00000604 | 0.00000498 | 19.2% |
| | 2,3,4,7,8-PeCDF | 0.00000598 | 0.00000519 | 14.1% |
| | 2,3,7,8-TCDD | 0.000000716 J | 0.000000635 J | 11.9% |
| | 2,3,7,8-TCDF | 0.00000082 J | 0.000000873 J | 6.2% |
| | OCDD | 0.00869 E | 0.00857 E | 1.3% |
| | OCDF | 0.00028 | 0.000246 | 12.9% |
| | Total HpCDD | 0.00103 | 0.000965 | 6.5% |
| | Total HpCDF | 0.00029 | 0.000264 | 9.3% |
| | Total HxCDD | 0.000154 | 0.000149 | 3.3% |
| | Total HxCDF | 0.000115 | 0.000104 | 10.0% |
| | Total PeCDD | 0.00003 | 0.0000252 | 17.3% |
| | Total PeCDF | 0.0000549 | 0.0000514 | 6.5% |
| | Total TCDD | 0.00000524 | 0.00000594 | 12.5% |
| | Total TCDF | 0.000022 | 0.0000152 | 36.5% |
| | WHO TEQ (Human/ Mammal-NDs Excluded) | 0.0000197 | 0.0000181 | 8.4% |
| | WHO TEQ (Human/ Mammal-NDs = 1/2 DL) | 0.0000197 | 0.0000181 | 8.4% |

AC Acceptable

The Total PeCDD associated with samples locations A6-5 (0-6") and Field Duplicate #5 exhibited a RPD greater than the control limit. The Total PeCDD results for sample locations A6-5 (0-6") and Field Duplicate #5 were qualified as estimated ("J").

## 10. Compound Identification

PCDD/PCDF compounds are identified by using the compound's ion abundance ratios, signal-to-noise ratios, and retention times relative to the internal standards'.

An estimated maximum possible concentration (EMPC) designation is given to compounds which have signals eluting within the established retention time window which would, if positively identified, be greater than the detection limit. The signals do not, however, meet the ion abundance ratio criteria and therefore cannot be identified as the compound of interest. The EMPC value is the estimated concentration of the interferant quantitated "as the compound of interest". This value should be considered an elevated detection limit based on potential compound identification and quantitation interference. The "UX" qualifier has been added to the following sample results (in mg/kg) to indicate the elevated detection limit as EMPC.

| Sample ID | Compound | Laboratory Result | Reported Result |
|---|---|---|---|
| A6-3 (0-6") | 1,2,3,4,7,8,9-HpCDF | 0.00000249 EMPC | 0.00000249 UX |
| Field Duplicate #5 | 1,2,3,4,7,8-HxCDD | 0.00000120 EMPC | 0.00000120 UX |
| | 1,2,3,6,7,8-HxCDD | 0.00000261 EMPC | 0.00000261 UX |
| | Total TCDD | 0.000000506 EMPC | 0.000000506 UX |
| A4-10 (0-6") | OCDF | 0.00000142 EMPC | 0.00000142 UX |
| | Total TCDD | 0.000000336 EMPC | 0.000000336 UX |
| | Total TCDF | 0.000000390 EMPC | 0.000000390 UX |
| | Total HpCDF | 0.00000103 EMPC | 0.00000103 UX |
| A6-6 (0-6") | 2,3,7,8-TCDF | 0.000000299 EMPC | 0.000000299 UX |
| | 1,2,3,6,7,8-HxCDF | 0.00000114 EMPC | 0.00000114 UX |
| A6-7 (0-6") | 1,2,3,6,7,8-HxCDF | 0.000000701 EMPC | 0.000000701 UX |
| A6-8 (0-6") | 2,3,7,8-TCDD | 0.000000196 EMPC | 0.000000196 UX |
| | 1,2,3,7,8-PeCDD | 0.000000750 EMPC | 0.000000750 UX |
| A4-5 (0-6") | 2,3,7,8-TCDD | 0.000000541 EMPC | 0.000000541 UX |
| A4-2 (0-6") | 2,3,7,8-TCDD | 0.000000457 EMPC | 0.000000457 UX |
| | 1,2,3,7,8-PeCDD | 0.00000144 EMPC | 0.00000144 UX |
| | 2,3,7,8-TCDF | 0.000000624 EMPC | 0.000000624 UX |
| A4-3 (0-6") | 1,2,3,7,8-PeCDD | 0.000000645 EMPC | 0.000000645 UX |
| | 2,3,4,7,8-PeCDF | 0.00000101 EMPC | 0.00000101 UX |
| | 1,2,3,6,7,8-HxCDF | 0.000000540 EMPC | 0.000000540 UX |
| A6-4 (0-6") | 2,3,7,8-TCDD | 0.000000460 EMPC | 0.000000460 UX |
| A4-9 (0-6") | 1,2,3,4,7,8-HxCDD | 0.00000145 EMPC | 0.00000145 UX |

The following results exhibited evidence of interference by chlorodiphenyl ethers. The results were flagged "P" by the laboratory indicating the result is the maximum concentrations of the analytes in the case that all of the quantified area is due to the target analyte and none due to the interference. Therefore, these results have been qualified as estimated ("J").

| Sample ID | Compound |
|---|---|
| A6-1 (0-6"), A6-2 (0-6"), A6-7 (0-6") | Total TCDF<br>Total PeCDF |
| A4-5 (0-6"), A6-4 (0-6") | Total PeCDF |
| A4-6 (0-6") | Total TCDF<br>Total PeCDF<br>Total HxCDF |
| A4-4 (0-6") | Total PeCDF<br>Total HxCDF |

Sample results that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table (mg/kg).

| Sample ID | Compound | Original Analysis | Diluted Analysis | Reported Analysis |
|---|---|---|---|---|
| A6-1 (0-6") | OCDD | 0.0260 E | — | 0.0260 EJ |
| A6-2 (0-6") | OCDD | 0.0152 E | — | 0.0152 EJ |
| A6-3 (0-6") | OCDD | 0.0128 E | — | 0.0128 EJ |
| A6-6 (0-6") | OCDD | 0.0115 E | — | 0.0115 EJ |
| A4-6 (0-6") | OCDD | 0.0211 E | — | 0.0211 EJ |
| A4-4 (0-6") | OCDD | 0.0159 E | — | 0.0159 EJ |
| A4-1 (0-6") | OCDD | 0.0106 E | — | 0.0106 EJ |
| A4-2 (0-6") | OCDD | 0.0121 E | — | 0.0121 EJ |
| A4-3 (0-6") | OCDD | 0.00921 E | — | 0.00921 EJ |
| A6-4 (0-6") | OCDD | 0.0104 E | — | 0.0104 EJ |
| A4-8 (0-6") | OCDD | 0.00869 E | — | 0.00869 EJ |
| Field Duplicate #6 | OCDD | 0.00857 E | — | 0.00857 EJ |

Note: In the instance where both the original analysis and the diluted analysis sample results exhibited a concentration greater than and/or less than the calibration linear range of the instrument; the sample result exhibiting the greatest concentration will be reported as the final result.

Sample results associated with compounds exhibiting concentration greater than the linear range qualified as documented in the table below when reported as the final reported sample result.

| Reported Sample Results | Qualification |
|---|---|
| Diluted sample result within calibration range | D |
| Diluted sample result less than the calibration range | DJ |
| Diluted sample result greater than the calibration range | EDJ |
| Original sample result greater than the calibration range | EJ |

## 11. System Performance and Overall Assessment

Overall system performance was acceptable. Except for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

## PCDDs/PCDFs – DATA VALIDATION CHECKLIST

| PCDDs/PCDFs; SW-846 8290 | Reported | | Performance Acceptable | | Not Required |
|---|---|---|---|---|---|
| | No | Yes | No | Yes | |
| GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS) | | | | | |
| **Tier II Validation** | | | | | |
| Holding times | | X | | X | |
| Reporting limits (units) | | X | | X | |
| Blanks | | | | | |
| A. Method blanks | | X | | X | |
| B. Equipment blanks | | X | | X | |
| Laboratory Control Sample (LCS) Accuracy (%R) | | X | | X | |
| Laboratory Control Sample Duplicate (LCSD) %R | | | | | X |
| LCS/LCSD Precision (RPD) | | | | | X |
| Matrix Spike (MS) %R | | X | X | | |
| Matrix Spike Duplicate (MSD) %R | | X | X | | |
| MS/MSD RPD | | X | | X | |
| Field/Laboratory Duplicate Sample RPD | | X | X | | |
| Dilution Factor | | X | | X | |
| Moisture Content | | X | | X | |
| **Tier III Validation** | | | | | |
| System performance and column resolution | | X | | X | |
| Initial calibration %RSDs | | X | | X | |
| Continuing calibration %Ds | | X | | X | |
| Instrument tune and performance check | | X | | X | |
| Ion abundance criteria for each instrument used | | X | | X | |
| Signal-to-noise ratio $\geq$ 10:1 | | X | | X | |
| Internal standard performance | | X | | X | |
| Recovery standard performance | | X | | X | |
| Resolution mix $\leq$ 25% | | X | | X | |
| Compound identification and quantitation | | | | | |
| A. Reconstructed ion chromatograms | | X | | X | |
| B. Quantitation Reports | | X | | X | |
| C. RT of sample compounds within the established RT windows | | X | | X | |
| D. Transcription/calculation errors present | | X | | X | |
| E. Reporting limits adjusted to reflect sample dilutions | | X | | X | |

RSD – relative standard deviation
%R - percent recovery
RPD - relative percent difference
%D – difference

VALIDATION PERFORMED BY: Dennis Dyke

SIGNATURE: 

DATE: May 11, 2010

PEER REVIEW: Dennis Capria

DATE: May 17, 2010

ARCADIS

**Attachment 4**

Validated Laboratory Data Sheets

**Sample ID:** A1-35 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Soil | Lab Sample: | 32550-003 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.35 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 68.0 | Date Analyzed DB-5: | 17-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0900 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 0.607 | | |
| 1,2,3,7,8-PeCDD | ND | | 1.46 | UX |
| 1,2,3,4,7,8-HxCDD | 5.18 | | | |
| 1,2,3,6,7,8-HxCDD | 11.3 | | | |
| 1,2,3,7,8,9-HxCDD | 8.34 | | | |
| 1,2,3,4,6,7,8-HpCDD | 375 | | | |
| OCDD | 12500 | | | E J |
| 2,3,7,8-TCDF | ND | | 0.831 | UX |
| 1,2,3,7,8-PeCDF | ND | | 0.705 | UX |
| 2,3,4,7,8-PeCDF | 1.69 | | | J |
| 1,2,3,4,7,8-HxCDF | 2.57 | | | J |
| 1,2,3,6,7,8-HxCDF | 1.18 | | | J |
| 2,3,4,6,7,8-HxCDF | ND | | 1.68 | UX |
| 1,2,3,7,8,9-HxCDF | ND | 1.49 | | |
| 1,2,3,4,6,7,8-HpCDF | 42.3 | | | |
| 1,2,3,4,7,8,9-HpCDF | 1.98 | | | J |
| OCDF | 167 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 82.0 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 70.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 82.6 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 82.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 90.7 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 76.2 | 40 - 135 | |
| | 13C-OCDD | 86.6 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 77.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 68.5 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 73.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 81.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 86.3 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 76.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 78.4 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 77.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 68.2 | 40 - 135 | |
| | 13C-OCDF | 64.9 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 81.3 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 10.3 | |
| Total PeCDD | 20.8 | 23.6 |
| Total HxCDD | 124 | |
| Total HpCDD | 843 | |
| Total TCDF | 3.10 | 6.30 |
| Total PeCDF | 11.9 | 16.6 |
| Total HxCDF | 49.1 | 56.7 |
| Total HpCDF | 163 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 11.4**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 15:17

**Sample ID:** A1-36 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32549-018 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.25 g | QC Batch No.: | 2967 | Date Extracted: | 21-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 70.3 | Date Analyzed DB-5: | 25-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0845 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.593 | | | J |
| 1,2,3,7,8-PeCDD | ND | | 0.697 | U X |
| 1,2,3,4,7,8-HxCDD | 1.88 | | | J |
| 1,2,3,6,7,8-HxCDD | 10.7 | | | |
| 1,2,3,7,8,9-HxCDD | 3.79 | | | J |
| 1,2,3,4,6,7,8-HpCDD | 341 | | | |
| OCDD | 8830 | | | E J |
| 2,3,7,8-TCDF | ND | 0.367 | | |
| 1,2,3,7,8-PeCDF | ND | 0.948 | | |
| 2,3,4,7,8-PeCDF | ND | 0.844 | | |
| 1,2,3,4,7,8-HxCDF | 2.43 | | | J |
| 1,2,3,6,7,8-HxCDF | ND | | 0.971 | U X |
| 2,3,4,6,7,8-HxCDF | 1.91 | | | J |
| 1,2,3,7,8,9-HxCDF | ND | 0.870 | | |
| 1,2,3,4,6,7,8-HpCDF | 79.8 | | | |
| 1,2,3,4,7,8,9-HpCDF | 6.44 | | | |
| OCDF | 560 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 95.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 94.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 98.4 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 99.9 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 95.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 82.2 | 40 - 135 | |
| | 13C-OCDD | 83.1 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 92.0 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 95.6 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 100 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 91.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 93.5 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 92.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 87.8 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 80.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 74.3 | 40 - 135 | |
| | 13C-OCDF | 67.3 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 87.6 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 2.67 | 3.32 |
| Total PeCDD | 10.7 | 13.3 |
| Total HxCDD | 65.4 | 66.8 |
| Total HpCDD | 659 | |
| Total TCDF | 0.760 | |
| Total PeCDF | 4.00 | |
| Total HxCDF | 82.1 | 83.0 |
| Total HpCDF | 466 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 9.75**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A1-37 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32549-016 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 3.32 g | QC Batch No.: | 2975 | Date Extracted: | 23-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 60.9 | Date Analyzed DB-5: | 25-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0840 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | | 2.12 | UX |
| 1,2,3,7,8-PeCDD | 12.7 | | | J |
| 1,2,3,4,7,8-HxCDD | 47.1 | | | J |
| 1,2,3,6,7,8-HxCDD | 351 | | | |
| 1,2,3,7,8,9-HxCDD | 66.9 | | | |
| 1,2,3,4,6,7,8-HpCDD | 10600 | | | |
| OCDD | 86000 | | | |
| 2,3,7,8-TCDF | ND | 2.52 | | |
| 1,2,3,7,8-PeCDF | ND | 5.44 | | |
| 2,3,4,7,8-PeCDF | ND | | 6.11 | UX |
| 1,2,3,4,7,8-HxCDF | 93.3 | | | |
| 1,2,3,6,7,8-HxCDF | 39.4 | | | J |
| 2,3,4,6,7,8-HxCDF | 96.9 | | | |
| 1,2,3,7,8,9-HxCDF | ND | 15.2 | | |
| 1,2,3,4,6,7,8-HpCDF | 3290 | | | |
| 1,2,3,4,7,8,9-HpCDF | 347 | | | |
| OCDF | 27200 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 94.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 86.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 91.3 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 95.1 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 88.3 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 76.6 | 40 - 135 | |
| | 13C-OCDD | 76.8 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 89.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 83.6 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 84.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 90.4 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 91.9 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 88.5 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 82.3 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 71.9 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 72.8 | 40 - 135 | |
| | 13C-OCDF | 70.1 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 84.8 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 33.9 | 36.1 | |
| Total PeCDD | 50.6 | 74.1 | |
| Total HxCDD | 2040 | | |
| Total HpCDD | 20500 | | |
| Total TCDF | 23.6 | 31.0 | |
| Total PeCDF | 178 | 187 | |
| Total HxCDF | 4970 | | |
| Total HpCDF | 29500 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 258**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** **FIELD DUPLICATE #3** **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32549-017 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.98 g | QC Batch No.: | 2967 | Date Extracted: | 21-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 62.6 | Date Analyzed DB-5: | 25-Apr-10 | Dates Analyzed DB-225: | 26-Apr-10 |
| Time Collected: | NA | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 1.91 | | | |
| 1,2,3,7,8-PeCDD | 16.5 | | | |
| 1,2,3,4,7,8-HxCDD | 66.8 | | | |
| 1,2,3,6,7,8-HxCDD | 542 | | | |
| 1,2,3,7,8,9-HxCDD | 114 | | | |
| 1,2,3,4,6,7,8-HpCDD | 15400 | | | E |
| OCDD | 146000 | | | *, E |
| 2,3,7,8-TCDF | 1.44 | | | |
| 1,2,3,7,8-PeCDF | 2.87 | | | J |
| 2,3,4,7,8-PeCDF | 10.1 | | | |
| 1,2,3,4,7,8-HxCDF | 137 | | | |
| 1,2,3,6,7,8-HxCDF | 36.4 | | | |
| 2,3,4,6,7,8-HxCDF | 128 | | | |
| 1,2,3,7,8,9-HxCDF | 23.1 | | | |
| 1,2,3,4,6,7,8-HpCDF | 5400 | | | E |
| 1,2,3,4,7,8,9-HpCDF | 558 | | | |
| OCDF | 41300 | | | E |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 92.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 89.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 102 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 102 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 104 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 116 | 40 - 135 | |
| | 13C-OCDD | 89.5 | 40 - 135 | * |
| | 13C-2,3,7,8-TCDF | 87.7 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 107 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 101 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 86.9 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 94.1 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 87.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 86.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 89.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 83.4 | 40 - 135 | |
| | 13C-OCDF | 117 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 88.8 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 59.8 | 60.2 | |
| Total PeCDD | 123 | | |
| Total HxCDD | 2870 | | |
| Total HpCDD | 27100 | | |
| Total TCDF | 67.5 | 69.9 | |
| Total PeCDF | 172 | | P |
| Total HxCDF | 7890 | | P |
| Total HpCDF | 52200 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min):** **396**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A1-38 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32549-019 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 8.19 g | QC Batch No.: | 2967 | Date Extracted: | 21-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 61.6 | Date Analyzed DB-5: | 25-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0850 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.672 | | | J |
| 1,2,3,7,8-PeCDD | 1.35 | | | J |
| 1,2,3,4,7,8-HxCDD | 2.32 | | | J |
| 1,2,3,6,7,8-HxCDD | 5.94 | | | |
| 1,2,3,7,8,9-HxCDD | 3.57 | | | J |
| 1,2,3,4,6,7,8-HpCDD | 225 | | | |
| OCDD | 5450 | | | |
| 2,3,7,8-TCDF | ND | 0.332 | | |
| 1,2,3,7,8-PeCDF | ND | 0.660 | | |
| 2,3,4,7,8-PeCDF | 1.20 | | | J |
| 1,2,3,4,7,8-HxCDF | 1.97 | | | J |
| 1,2,3,6,7,8-HxCDF | 0.606 | | | J |
| 2,3,4,6,7,8-HxCDF | 1.30 | | | J |
| 1,2,3,7,8,9-HxCDF | ND | 0.757 | | |
| 1,2,3,4,6,7,8-HpCDF | 23.1 | | | |
| 1,2,3,4,7,8,9-HpCDF | 2.01 | | | J |
| OCDF | 111 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 92.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 88.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 93.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 98.9 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 95.3 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 82.9 | 40 - 135 | |
| | 13C-OCDD | 85.6 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 94.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 93.9 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 97.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 88.3 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 91.6 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 87.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 85.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 74.9 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 77.2 | 40 - 135 | |
| | 13C-OCDF | 75.5 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 87.1 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 7.88 | 10.1 |
| Total PeCDD | 14.4 | 25.6 |
| Total HxCDD | 115 | |
| Total HpCDD | 514 | |
| Total TCDF | 3.80 | 4.04 |
| Total PeCDF | 6.03 | 6.51 |
| Total HxCDF | 36.0 | |
| Total HpCDF | 122 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 8.13**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A1-39 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32549-020 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 8.36 g | QC Batch No.: | 2967 | Date Extracted: | 21-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 60.9 | Date Analyzed DB-5: | 25-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0855 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | | 1.34 | UX |
| 1,2,3,7,8-PeCDD | 12.8 | | | |
| 1,2,3,4,7,8-HxCDD | 32.6 | | | |
| 1,2,3,6,7,8-HxCDD | 74.9 | | | |
| 1,2,3,7,8,9-HxCDD | 51.9 | | | |
| 1,2,3,4,6,7,8-HpCDD | 2510 | | | |
| OCDD | 30800 | | | E J |
| 2,3,7,8-TCDF | 0.646 | | | J |
| 1,2,3,7,8-PeCDF | 1.16 | | | J |
| 2,3,4,7,8-PeCDF | 4.50 | | | J |
| 1,2,3,4,7,8-HxCDF | 16.2 | | | |
| 1,2,3,6,7,8-HxCDF | 7.29 | | | |
| 2,3,4,6,7,8-HxCDF | 12.7 | | | |
| 1,2,3,7,8,9-HxCDF | 3.24 | | | J |
| 1,2,3,4,6,7,8-HpCDF | 402 | | | |
| 1,2,3,4,7,8,9-HpCDF | 28.5 | | | |
| OCDF | 1960 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 93.2 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 87.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 87.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 90.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 93.0 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 86.0 | 40 - 135 | |
| | 13C-OCDD | 81.1 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 92.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 92.4 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 93.1 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 87.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 82.7 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 88.7 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 88.2 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 76.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 72.2 | 40 - 135 | |
| | 13C-OCDF | 68.4 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 86.1 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 11.4 | 18.0 |
| Total PeCDD | 64.8 | |
| Total HxCDD | 468 | |
| Total HpCDD | 4380 | |
| Total TCDF | 11.8 | 14.0 |
| Total PeCDF | 40.7 | 41.2 |
| Total HxCDF | 361 | |
| Total HpCDF | 1780 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 73.4**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A1-40 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Soil | Lab Sample: | 32550-004 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 9.17 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 54.5 | Date Analyzed DB-5: | 17-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0905 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 8.05 | | | |
| 1,2,3,7,8-PeCDD | ND | | 2.90 | UX |
| 1,2,3,4,7,8-HxCDD | ND | 4.42 | | |
| 1,2,3,6,7,8-HxCDD | 5.09 | | | |
| 1,2,3,7,8,9-HxCDD | ND | 4.75 | | |
| 1,2,3,4,6,7,8-HpCDD | 207 | | | |
| OCDD | 6430 | | | |
| 2,3,7,8-TCDF | ND | | 0.478 | UX |
| 1,2,3,7,8-PeCDF | ND | 0.547 | | |
| 2,3,4,7,8-PeCDF | 0.633 | | | J |
| 1,2,3,4,7,8-HxCDF | ND | 1.97 | | |
| 1,2,3,6,7,8-HxCDF | ND | 1.77 | | |
| 2,3,4,6,7,8-HxCDF | ND | 1.88 | | |
| 1,2,3,7,8,9-HxCDF | ND | 1.38 | | |
| 1,2,3,4,6,7,8-HpCDF | 31.8 | | | |
| 1,2,3,4,7,8,9-HpCDF | 2.06 | | | J |
| OCDF | 168 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 81.3 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 65.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 78.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 83.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 78.7 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 67.8 | 40 - 135 | |
| | 13C-OCDD | 71.2 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 74.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 65.9 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 65.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 79.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 90.1 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 75.3 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 74.3 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 65.9 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 63.6 | 40 - 135 | |
| | 13C-OCDF | 60.5 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 87.0 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 22.0 | 22.4 |
| Total PeCDD | 64.9 | 67.8 |
| Total HxCDD | 117 | |
| Total HpCDD | 521 | |
| Total TCDF | 3.98 | 6.73 |
| Total PeCDF | 5.69 | 8.94 |
| Total HxCDF | 30.1 | 32.1 |
| Total HpCDF | 149 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 13.1**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** A1-41 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Soil | Lab Sample: | 32550-005 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 6.71 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 78.0 | Date Analyzed DB-5: | 17-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0910 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.742 | | | J |
| 1,2,3,7,8-PeCDD | 13.3 | | | |
| 1,2,3,4,7,8-HxCDD | 34.7 | | | |
| 1,2,3,6,7,8-HxCDD | 31.3 | | | |
| 1,2,3,7,8,9-HxCDD | 73.0 | | | |
| 1,2,3,4,6,7,8-HpCDD | 2140 | | | |
| OCDD | 28300 | | | E J |
| 2,3,7,8-TCDF | ND | 0.798 | | |
| 1,2,3,7,8-PeCDF | ND | | 1.08 | UX |
| 2,3,4,7,8-PeCDF | 4.35 | | | J |
| 1,2,3,4,7,8-HxCDF | 13.8 | | | |
| 1,2,3,6,7,8-HxCDF | 17.1 | | | |
| 2,3,4,6,7,8-HxCDF | 27.0 | | | |
| 1,2,3,7,8,9-HxCDF | 2.26 | | | J |
| 1,2,3,4,6,7,8-HpCDF | 546 | | | |
| 1,2,3,4,7,8,9-HpCDF | 22.5 | | | |
| OCDF | 1140 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 86.2 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 74.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 92.4 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 95.2 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 90.7 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 87.0 | 40 - 135 | |
| | 13C-OCDD | 118 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 82.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 73.5 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 79.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 90.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 96.1 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 83.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 81.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 76.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 73.5 | 40 - 135 | |
| | 13C-OCDF | 73.8 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 86.2 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 0.742 | 3.08 |
| Total PeCDD | 61.4 | 62.3 |
| Total HxCDD | 563 | |
| Total HpCDD | 3970 | |
| Total TCDF | 12.0 | |
| Total PeCDF | 92.6 | 95.9 |
| Total HxCDF | 521 | |
| Total HpCDF | 1500 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 71.2**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** A1-42 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Soil | Lab Sample: | 32550-006 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.04 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 71.4 | Date Analyzed DB-5: | 17-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0915 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | | 0.316 | UX |
| 1,2,3,7,8-PeCDD | ND | | 0.882 | UX |
| 1,2,3,4,7,8-HxCDD | ND | | 1.89 | UX |
| 1,2,3,6,7,8-HxCDD | 4.18 | | | J |
| 1,2,3,7,8,9-HxCDD | 3.48 | | | J |
| 1,2,3,4,6,7,8-HpCDD | 160 | | | |
| OCDD | 9280 | | | E J |
| 2,3,7,8-TCDF | ND | 0.622 | | |
| 1,2,3,7,8-PeCDF | ND | 0.840 | | |
| 2,3,4,7,8-PeCDF | ND | | 0.778 | UX |
| 1,2,3,4,7,8-HxCDF | 1.20 | | | J |
| 1,2,3,6,7,8-HxCDF | ND | 1.03 | | |
| 2,3,4,6,7,8-HxCDF | 1.14 | | | J |
| 1,2,3,7,8,9-HxCDF | ND | 0.783 | | |
| 1,2,3,4,6,7,8-HpCDF | 16.0 | | | |
| 1,2,3,4,7,8,9-HpCDF | ND | | 0.888 | UX |
| OCDF | 58.8 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 87.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 74.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 89.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 87.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 89.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 70.5 | 40 - 135 | |
| | 13C-OCDD | 79.0 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 84.2 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 77.0 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 86.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 92.3 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 99.3 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 83.9 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 85.2 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 71.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 68.5 | 40 - 135 | |
| | 13C-OCDF | 61.2 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 87.3 | 40 - 135 | |

| Totals | | | Toxic Equivalent Quotient (TEQ) Data [e] |
|---|---|---|---|
| Total TCDD | 2.70 | 3.01 | **TEQ (Min): 5.56** |
| Total PeCDD | 6.57 | 8.26 | |
| Total HxCDD | 46.8 | 48.7 | a. Sample specific estimated detection limit. |
| Total HpCDD | 378 | | b. Estimated maximum possible concentration. |
| Total TCDF | 3.22 | | c. Method detection limit. |
| Total PeCDF | 4.20 | 5.23 | d. Lower control limit - upper control limit. |
| Total HxCDF | 16.3 | 17.6 | e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO) |
| Total HpCDF | 56.3 | 57.2 | The results are reported in dry weight. The sample size is reported in wet weight. |

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** A1-43 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32550-007 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.78 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 65.4 | Date Analyzed DB-5: | 17-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0920 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | | 0.334 | UX |
| 1,2,3,7,8-PeCDD | ND | 0.664 | | |
| 1,2,3,4,7,8-HxCDD | ND | 1.89 | | |
| 1,2,3,6,7,8-HxCDD | ND | 2.55 | | |
| 1,2,3,7,8,9-HxCDD | ND | 1.89 | | |
| 1,2,3,4,6,7,8-HpCDD | 79.1 | | | |
| OCDD | 4000 | | | |
| 2,3,7,8-TCDF | ND | 0.490 | | |
| 1,2,3,7,8-PeCDF | ND | 0.637 | | |
| 2,3,4,7,8-PeCDF | ND | 0.619 | | |
| 1,2,3,4,7,8-HxCDF | ND | 0.800 | | |
| 1,2,3,6,7,8-HxCDF | ND | 0.404 | | |
| 2,3,4,6,7,8-HxCDF | ND | 0.498 | | |
| 1,2,3,7,8,9-HxCDF | ND | 0.685 | | |
| 1,2,3,4,6,7,8-HpCDF | 5.72 | | | |
| 1,2,3,4,7,8,9-HpCDF | ND | 0.887 | | |
| OCDF | 21.7 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 81.7 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 67.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 79.9 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 78.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 76.2 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 64.0 | 40 - 135 | |
| | 13C-OCDD | 65.3 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 76.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 68.1 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 70.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 87.5 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 90.1 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 76.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 71.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 61.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 58.2 | 40 - 135 | |
| | 13C-OCDF | 57.2 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 79.6 | 40 - 135 | |

**Totals**

| | | | | |
|---|---|---|---|---|
| Total TCDD | ND | | 0.334 | UX |
| Total PeCDD | ND | | 2.34 | UX |
| Total HxCDD | 23.0 | | | |
| Total HpCDD | 238 | | | |
| Total TCDF | ND | 0.490 | | |
| Total PeCDF | ND | | 0.446 | UX |
| Total HxCDF | 4.45 | | | |
| Total HpCDF | 22.7 | | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 2.05**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** A1-44 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32550-008 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.84 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 64.1 | Date Analyzed DB-5: | 18-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0925 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 0.490 | | |
| 1,2,3,7,8-PeCDD | 3.04 | | | J |
| 1,2,3,4,7,8-HxCDD | 6.46 | | | |
| 1,2,3,6,7,8-HxCDD | 24.2 | | | |
| 1,2,3,7,8,9-HxCDD | 11.2 | | | |
| 1,2,3,4,6,7,8-HpCDD | 670 | | | |
| OCDD | 10300 | | | E J |
| 2,3,7,8-TCDF | 0.589 | | | J |
| 1,2,3,7,8-PeCDF | 2.27 | | | J |
| 2,3,4,7,8-PeCDF | 14.9 | | | |
| 1,2,3,4,7,8-HxCDF | 28.5 | | | |
| 1,2,3,6,7,8-HxCDF | 7.22 | | | |
| 2,3,4,6,7,8-HxCDF | 12.3 | | | |
| 1,2,3,7,8,9-HxCDF | 7.74 | | | |
| 1,2,3,4,6,7,8-HpCDF | 130 | | | |
| 1,2,3,4,7,8,9-HpCDF | 14.8 | | | |
| OCDF | 596 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 85.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 74.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 88.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 85.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 84.4 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 74.6 | 40 - 135 | |
| | 13C-OCDD | 87.3 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 83.1 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 75.1 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 79.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 89.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 98.8 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 82.5 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 79.1 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 72.1 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 67.3 | 40 - 135 | |
| | 13C-OCDF | 66.8 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 83.9 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 4.79 | |
| Total PeCDD | 30.7 | 31.7 |
| Total HxCDD | 205 | |
| Total HpCDD | 1680 | |
| Total TCDF | 7.31 | 10.2 |
| Total PeCDF | 80.6 | |
| Total HxCDF | 255 | 257 |
| Total HpCDF | 666 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 28.8**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** A1-45 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Soil | Lab Sample: | 32550-010 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.06 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 71.6 | Date Analyzed DB-5: | 18-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0940 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | | 0.676 | UX |
| 1,2,3,7,8-PeCDD | ND | 0.967 | | |
| 1,2,3,4,7,8-HxCDD | ND | 1.54 | | |
| 1,2,3,6,7,8-HxCDD | ND | 1.84 | | |
| 1,2,3,7,8,9-HxCDD | 0.943 | | | J |
| 1,2,3,4,6,7,8-HpCDD | 55.2 | | | |
| OCDD | 7630 | | | |
| 2,3,7,8-TCDF | ND | 0.477 | | |
| 1,2,3,7,8-PeCDF | ND | 0.719 | | |
| 2,3,4,7,8-PeCDF | ND | 0.676 | | |
| 1,2,3,4,7,8-HxCDF | 0.751 | | | J |
| 1,2,3,6,7,8-HxCDF | ND | 0.554 | | |
| 2,3,4,6,7,8-HxCDF | ND | 0.719 | | |
| 1,2,3,7,8,9-HxCDF | ND | 0.892 | | |
| 1,2,3,4,6,7,8-HpCDF | 5.36 | | | |
| 1,2,3,4,7,8,9-HpCDF | ND | 0.801 | | |
| OCDF | 20.7 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 85.0 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 75.0 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 88.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 86.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 86.3 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 73.0 | 40 - 135 | |
| | 13C-OCDD | 84.8 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 82.7 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 73.9 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 76.1 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 89.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 91.2 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 81.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 78.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 72.9 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 70.4 | 40 - 135 | |
| | 13C-OCDF | 67.2 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 84.9 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | ND | 0.676 | UX |
| Total PeCDD | 2.28 | 3.13 | |
| Total HxCDD | 11.8 | | |
| Total HpCDD | 123 | | |
| Total TCDF | 0.841 | | |
| Total PeCDF | 0.762 | | |
| Total HxCDF | 0.751 | 6.47 | |
| Total HpCDF | 20.8 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 3.07**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** A1-46 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32550-011 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.45 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 67.5 | Date Analyzed DB-5: | 18-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0945 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 0.610 | | |
| 1,2,3,7,8-PeCDD | ND | 0.984 | | |
| 1,2,3,4,7,8-HxCDD | ND | 3.96 | | |
| 1,2,3,6,7,8-HxCDD | ND | 3.81 | | |
| 1,2,3,7,8,9-HxCDD | ND | 4.21 | | |
| 1,2,3,4,6,7,8-HpCDD | 83.6 | | | |
| OCDD | 4370 | | | |
| 2,3,7,8-TCDF | ND | 0.488 | | |
| 1,2,3,7,8-PeCDF | ND | 1.16 | | |
| 2,3,4,7,8-PeCDF | 1.30 | | | J |
| 1,2,3,4,7,8-HxCDF | 1.75 | | | J |
| 1,2,3,6,7,8-HxCDF | ND | 0.673 | | |
| 2,3,4,6,7,8-HxCDF | ND | 1.46 | | |
| 1,2,3,7,8,9-HxCDF | ND | 1.02 | | |
| 1,2,3,4,6,7,8-HpCDF | 9.81 | | | |
| 1,2,3,4,7,8,9-HpCDF | ND | 1.28 | | |
| OCDF | 35.6 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 77.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 62.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 79.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 81.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 76.7 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 63.1 | 40 - 135 | |
| | 13C-OCDD | 67.4 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 76.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 58.4 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 62.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 79.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 83.6 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 75.7 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 73.1 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 63.1 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 61.1 | 40 - 135 | |
| | 13C-OCDF | 56.7 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 87.5 | 40 - 135 | |

| Totals | | | | |
|---|---|---|---|---|
| Total TCDD | ND | 0.792 | | |
| Total PeCDD | ND | 1.26 | | |
| Total HxCDD | 18.2 | | | |
| Total HpCDD | 185 | | | |
| Total TCDF | ND | | 0.639 | UX |
| Total PeCDF | 1.30 | | 4.71 | |
| Total HxCDF | 13.0 | | 14.0 | |
| Total HpCDF | 34.6 | | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 2.82**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** A1-47 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32550-009 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.75 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 64.8 | Date Analyzed DB-5: | 18-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0935 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 0.425 | | |
| 1,2,3,7,8-PeCDD | ND | 1.20 | | |
| 1,2,3,4,7,8-HxCDD | ND | | 1.66 | UX |
| 1,2,3,6,7,8-HxCDD | 9.38 | | | |
| 1,2,3,7,8,9-HxCDD | ND | 3.39 | | |
| 1,2,3,4,6,7,8-HpCDD | 226 | | | |
| OCDD | 4970 | | | |
| 2,3,7,8-TCDF | ND | | 0.716 | UX |
| 1,2,3,7,8-PeCDF | 2.18 | | | J |
| 2,3,4,7,8-PeCDF | 28.6 | | | |
| 1,2,3,4,7,8-HxCDF | 32.5 | | | |
| 1,2,3,6,7,8-HxCDF | 7.26 | | | |
| 2,3,4,6,7,8-HxCDF | 9.82 | | | |
| 1,2,3,7,8,9-HxCDF | 9.32 | | | |
| 1,2,3,4,6,7,8-HpCDF | 67.0 | | | |
| 1,2,3,4,7,8,9-HpCDF | 8.48 | | | |
| OCDF | 263 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 85.2 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 75.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 94.8 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 91.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 89.6 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 74.2 | 40 - 135 | |
| | 13C-OCDD | 77.7 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 87.7 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 77.7 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 83.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 94.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 95.7 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 85.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 80.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 74.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 68.6 | 40 - 135 | |
| | 13C-OCDF | 65.8 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 83.0 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | ND | 0.282 | UX |
| Total PeCDD | 1.79 | 7.62 | |
| Total HxCDD | 50.6 | 52.3 | |
| Total HpCDD | 472 | | |
| Total TCDF | 8.59 | 9.31 | |
| Total PeCDF | 100 | 100 | |
| Total HxCDF | 202 | 203 | |
| Total HpCDF | 324 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 20.1**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 15:49

**Sample ID:** A1-48 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32550-012 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 6.72 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 76.0 | Date Analyzed DB-5: | 18-Apr-10 | Dates Analyzed DB-225: | 20-Apr-10 |
| Time Collected: | 1050 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 0.476 | | |
| 1,2,3,7,8-PeCDD | 2.63 | | | J |
| 1,2,3,4,7,8-HxCDD | 7.80 | | | |
| 1,2,3,6,7,8-HxCDD | 110 | | | J |
| 1,2,3,7,8,9-HxCDD | 20.5 | | | |
| 1,2,3,4,6,7,8-HpCDD | 6130 | | | E J |
| OCDD | 89100 | | | D,E J |
| 2,3,7,8-TCDF | 1.91 | | | |
| 1,2,3,7,8-PeCDF | 9.60 | | | |
| 2,3,4,7,8-PeCDF | 96.9 | | | J |
| 1,2,3,4,7,8-HxCDF | 222 | | | J |
| 1,2,3,6,7,8-HxCDF | 40.7 | | | |
| 2,3,4,6,7,8-HxCDF | 53.5 | | | |
| 1,2,3,7,8,9-HxCDF | 46.3 | | | |
| 1,2,3,4,6,7,8-HpCDF | 980 | | | |
| 1,2,3,4,7,8,9-HpCDF | 87.8 | | | |
| OCDF | 5620 | | | |

| Labeled Standard | | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 86.2 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 66.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 83.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 86.3 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 84.0 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 109 | 40 - 135 | |
| | 13C-OCDD | 113 | 40 - 135 | D |
| | 13C-2,3,7,8-TCDF | 80.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 68.4 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 68.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 87.3 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 94.1 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 83.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 83.7 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 87.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 86.8 | 40 - 135 | |
| | 13C-OCDF | 112 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 85.9 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 2.25 | | |
| Total PeCDD | 14.1 | 18.7 | |
| Total HxCDD | 496 | | J |
| Total HpCDD | 12300 | | J |
| Total TCDF | 23.8 | 30.8 | |
| Total PeCDF | 422 | 432 | J |
| Total HxCDF | 1560 | | J |
| Total HpCDF | 5980 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min):** 183

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** A2-11 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Sediment | Lab Sample: | 32549-003 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 8.07 g | QC Batch No.: | 2956 | Date Extracted: | 19-Apr-10 |
| Date Collected: | 29-Mar-10 | %Solids: | 62.5 | Date Analyzed DB-5: | 21-Apr-10 | Dates Analyzed DB-225: | 21-Apr-10 |
| Time Collected: | 1550 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 9.63 | | | |
| 1,2,3,7,8-PeCDD | 114 | | | |
| 1,2,3,4,7,8-HxCDD | 805 | | | |
| 1,2,3,6,7,8-HxCDD | 2010 | | | |
| 1,2,3,7,8,9-HxCDD | 680 | | | |
| 1,2,3,4,6,7,8-HpCDD | 111000 | | | D |
| OCDD | 573000 | | | D,E 4 |
| 2,3,7,8-TCDF | 9.19 | | | |
| 1,2,3,7,8-PeCDF | 37.8 | | | |
| 2,3,4,7,8-PeCDF | 221 | | | |
| 1,2,3,4,7,8-HxCDF | 675 | | | |
| 1,2,3,6,7,8-HxCDF | 154 | | | |
| 2,3,4,6,7,8-HxCDF | 311 | | | |
| 1,2,3,7,8,9-HxCDF | 159 | | | |
| 1,2,3,4,6,7,8-HpCDF | 12100 | | | E 4 |
| 1,2,3,4,7,8,9-HpCDF | 968 | | | |
| OCDF | 61300 | | | E 4 |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 91.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 84.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 86.8 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 95.1 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 77.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 72.8 | 40 - 135 | D |
| | 13C-OCDD | 173 | 40 - 135 | D,I |
| | 13C-2,3,7,8-TCDF | 80.7 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 77.0 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 80.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 89.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 92.3 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 83.3 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 82.1 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 79.0 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 75.4 | 40 - 135 | |
| | 13C-OCDF | 76.8 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 99.8 | 40 - 135 | |

| Totals | | | | |
|---|---|---|---|---|
| Total TCDD | 482 | | | |
| Total PeCDD | 2820 | | | |
| Total HxCDD | 25600 | | | |
| Total HpCDD | 279000 | | | D |
| Total TCDF | 150 | 152 | | P 4 |
| Total PeCDF | 1460 | 1460 | | P 4 |
| Total HxCDF | 17200 | | | P 4 |
| Total HpCDF | 73100 | | | 4 |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 2100**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A2-12 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Sediment | Lab Sample: | 32549-001 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.71 g | QC Batch No.: | 2956 | Date Extracted: | 19-Apr-10 |
| Date Collected: | 29-Mar-10 | %Solids: | 64.9 | Date Analyzed DB-5: | 21-Apr-10 | Dates Analyzed DB-225: | 21-Apr-10 |
| Time Collected: | 1530 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 9.88 | | | |
| 1,2,3,7,8-PeCDD | 173 | | | |
| 1,2,3,4,7,8-HxCDD | 1280 | | | |
| 1,2,3,6,7,8-HxCDD | 3980 | | | |
| 1,2,3,7,8,9-HxCDD | 1080 | | | |
| 1,2,3,4,6,7,8-HpCDD | 148000 | | | E J |
| OCDD | 627000 | | | D,E J |
| 2,3,7,8-TCDF | 8.77 | | | |
| 1,2,3,7,8-PeCDF | 49.1 | | | |
| 2,3,4,7,8-PeCDF | 302 | | | |
| 1,2,3,4,7,8-HxCDF | 1270 | | | |
| 1,2,3,6,7,8-HxCDF | 289 | | | P J |
| 2,3,4,6,7,8-HxCDF | 606 | | | |
| 1,2,3,7,8,9-HxCDF | 255 | | | |
| 1,2,3,4,6,7,8-HpCDF | 24700 | | | E J |
| 1,2,3,4,7,8,9-HpCDF | 2000 | | | |
| OCDF | 119000 | | | E J |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 99.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 86.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 82.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 89.6 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 70.0 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 74.1 | 40 - 135 | |
| | 13C-OCDD | 260 | 40 - 135 | D,I |
| | 13C-2,3,7,8-TCDF | 87.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 86.6 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 84.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 87.4 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 92.5 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 73.2 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 81.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 72.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 67.8 | 40 - 135 | |
| | 13C-OCDF | 59.3 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 94.3 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 400 | | |
| Total PeCDD | 3350 | | |
| Total HxCDD | 43800 | | |
| Total HpCDD | 355000 | | J |
| Total TCDF | 204 | P | J |
| Total PeCDF | 2180 | P | J |
| Total HxCDF | 33200 | P | J |
| Total HpCDF | 141000 | | J |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 3120**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A2-13 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32549-004 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.16 g | QC Batch No.: | 2967 | Date Extracted: | 21-Apr-10 |
| Date Collected: | 29-Mar-10 | %Solids: | 70.2 | Date Analyzed DB-5: | 22-Apr-10 | Dates Analyzed DB-225: | 26-Apr-10 |
| Time Collected: | 1520 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.480 | | | J |
| 1,2,3,7,8-PeCDD | 3.63 | | | J |
| 1,2,3,4,7,8-HxCDD | 13.2 | | | |
| 1,2,3,6,7,8-HxCDD | 29.0 | | | |
| 1,2,3,7,8,9-HxCDD | 12.5 | | | |
| 1,2,3,4,6,7,8-HpCDD | 1000 | | | |
| OCDD | 13500 | | | E J |
| 2,3,7,8-TCDF | 1.23 | | | |
| 1,2,3,7,8-PeCDF | ND | | 0.850 | UX |
| 2,3,4,7,8-PeCDF | 2.87 | | | J |
| 1,2,3,4,7,8-HxCDF | 8.39 | | | |
| 1,2,3,6,7,8-HxCDF | 3.32 | | | J |
| 2,3,4,6,7,8-HxCDF | 6.83 | | | |
| 1,2,3,7,8,9-HxCDF | 1.88 | | | J |
| 1,2,3,4,6,7,8-HpCDF | 251 | | | |
| 1,2,3,4,7,8,9-HpCDF | 16.4 | | | |
| OCDF | 1350 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 92.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 96.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 98.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 103 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 102 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 115 | 40 - 135 | |
| | 13C-OCDD | 134 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 88.7 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 99.3 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 103 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 84.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 91.4 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 90.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 93.8 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 97.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 102 | 40 - 135 | |
| | 13C-OCDF | 114 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 87.1 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 92.6 | 99.0 |
| Total PeCDD | 108 | 110 |
| Total HxCDD | 280 | |
| Total HpCDD | 2020 | |
| Total TCDF | 23.3 | 31.5 |
| Total PeCDF | 31.5 | 33.3 |
| Total HxCDF | 262 | |
| Total HpCDF | 1260 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 29.7**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** **FIELD DUPLICATE#1** **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32549-005 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.32 g | QC Batch No.: | 2967 | Date Extracted: | 21-Apr-10 |
| Date Collected: | 29-Mar-10 | %Solids: | 68.5 | Date Analyzed DB-5: | 22-Apr-10 | Dates Analyzed DB-225: | 26-Apr-10 |
| Time Collected: | NA | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.768 | | | J |
| 1,2,3,7,8-PeCDD | 7.55 | | | |
| 1,2,3,4,7,8-HxCDD | 30.0 | | | |
| 1,2,3,6,7,8-HxCDD | 72.6 | | | |
| 1,2,3,7,8,9-HxCDD | 30.8 | | | |
| 1,2,3,4,6,7,8-HpCDD | 2570 | | | |
| OCDD | 35100 | | | E J |
| 2,3,7,8-TCDF | 2.26 | | | |
| 1,2,3,7,8-PeCDF | 2.92 | | | J |
| 2,3,4,7,8-PeCDF | 7.15 | | | |
| 1,2,3,4,7,8-HxCDF | 21.8 | | | |
| 1,2,3,6,7,8-HxCDF | 8.42 | | | |
| 2,3,4,6,7,8-HxCDF | 16.1 | | | |
| 1,2,3,7,8,9-HxCDF | 4.80 | | | J |
| 1,2,3,4,6,7,8-HpCDF | 611 | | | |
| 1,2,3,4,7,8,9-HpCDF | 39.5 | | | |
| OCDF | 3190 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 94.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 90.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 99.5 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 108 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 98.0 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 99.3 | 40 - 135 | |
| | 13C-OCDD | 103 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 92.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 92.8 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 95.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 89.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 93.9 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 90.6 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 90.1 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 85.9 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 82.2 | 40 - 135 | |
| | 13C-OCDF | 87.3 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 84.9 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 119 | | |
| Total PeCDD | 207 | | |
| Total HxCDD | 778 | | |
| Total HpCDD | 5640 | | |
| Total TCDF | 47.8 | 48.2 | |
| Total PeCDF | 85.0 | 85.5 | |
| Total HxCDF | 729 | | |
| Total HpCDF | 3370 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min):** **72.9**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A2-14 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32549-006 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 2.62 g | QC Batch No.: | 2975 | Date Extracted: | 23-Apr-10 |
| Date Collected: | 29-Mar-10 | %Solids: | 77.7 | Date Analyzed DB-5: | 25-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 1450 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 16.0 | | | |
| 1,2,3,7,8-PeCDD | 237 | | | |
| 1,2,3,4,7,8-HxCDD | 1430 | | | |
| 1,2,3,6,7,8-HxCDD | 6330 | | | |
| 1,2,3,7,8,9-HxCDD | 2300 | | | |
| 1,2,3,4,6,7,8-HpCDD | 296000 | | | E J |
| OCDD | 4850000 | | | D,E J |
| 2,3,7,8-TCDF | ND | 6.91 | | |
| 1,2,3,7,8-PeCDF | 25.6 | | | J |
| 2,3,4,7,8-PeCDF | 104 | | | |
| 1,2,3,4,7,8-HxCDF | 871 | | | |
| 1,2,3,6,7,8-HxCDF | 241 | | | |
| 2,3,4,6,7,8-HxCDF | 646 | | | |
| 1,2,3,7,8,9-HxCDF | 142 | | | |
| 1,2,3,4,6,7,8-HpCDF | 31600 | | | |
| 1,2,3,4,7,8,9-HpCDF | 2580 | | | |
| OCDF | 202000 | | | E J |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 82.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 71.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 81.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 87.3 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 81.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 120 | 40 - 135 | |
| | 13C-OCDD | 160 | 40 - 135 | D,I |
| | 13C-2,3,7,8-TCDF | 80.2 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 71.0 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 72.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 81.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 83.0 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 79.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 76.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 81.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 71.4 | 40 - 135 | |
| | 13C-OCDF | 130 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 75.2 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 118 | 137 | |
| Total PeCDD | 1180 | 1210 | |
| Total HxCDD | 34400 | | |
| Total HpCDD | 570000 | | J |
| Total TCDF | 159 | 177 | |
| Total PeCDF | 1260 | | P J |
| Total HxCDF | 38400 | | P J |
| Total HpCDF | 248000 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 6300**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors (WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A2-15 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32549-007 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.31 g | QC Batch No.: | 2967 | Date Extracted: | 21-Apr-10 |
| Date Collected: | 29-Mar-10 | %Solids: | 69.7 | Date Analyzed DB-5: | 24-Apr-10 | Dates Analyzed DB-225: | 26-Apr-10 |
| Time Collected: | 1510 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 3.20 | | | |
| 1,2,3,7,8-PeCDD | 48.1 | | | |
| 1,2,3,4,7,8-HxCDD | 152 | | | |
| 1,2,3,6,7,8-HxCDD | 1820 | | | |
| 1,2,3,7,8,9-HxCDD | 355 | | | |
| 1,2,3,4,6,7,8-HpCDD | 79800 | | | D,E 4 |
| OCDD | 537000 | | | D,E 4 |
| 2,3,7,8-TCDF | 5.64 | | | |
| 1,2,3,7,8-PeCDF | 25.7 | | | |
| 2,3,4,7,8-PeCDF | 153 | | | |
| 1,2,3,4,7,8-HxCDF | 733 | | | |
| 1,2,3,6,7,8-HxCDF | 136 | | | |
| 2,3,4,6,7,8-HxCDF | 281 | | | |
| 1,2,3,7,8,9-HxCDF | 155 | | | |
| 1,2,3,4,6,7,8-HpCDF | 10500 | | | E 4 |
| 1,2,3,4,7,8,9-HpCDF | 1200 | | | |
| OCDF | 61500 | | | D |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 94.3 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 96.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 105 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 107 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 101 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 89.2 | 40 - 135 | D |
| | 13C-OCDD | 89.2 | 40 - 135 | D,I |
| | 13C-2,3,7,8-TCDF | 95.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 87.0 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 100 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 91.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 91.3 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 91.5 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 93.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 91.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 96.0 | 40 - 135 | |
| | 13C-OCDF | 73.2 | 40 - 135 | D,I |
| CRS | 37Cl-2,3,7,8-TCDD | 90.1 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 35.0 | 36.9 | |
| Total PeCDD | 318 | | |
| Total HxCDD | 17100 | | |
| Total HpCDD | 235000 | | D 4 |
| Total TCDF | 75.8 | 79.1 | P 4 |
| Total PeCDF | 983 | | P 4 |
| Total HxCDF | 15800 | | P 4 |
| Total HpCDF | 72700 | | 4 |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 1560**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A2-16 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32549-008 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 3.41 g | QC Batch No.: | 2975 | Date Extracted: | 23-Apr-10 |
| Date Collected: | 29-Mar-10 | %Solids: | 60.8 | Date Analyzed DB-5: | 25-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 1500 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 6.64 | | |
| 1,2,3,7,8-PeCDD | 133 | | | |
| 1,2,3,4,7,8-HxCDD | 1090 | | | |
| 1,2,3,6,7,8-HxCDD | 4620 | | | |
| 1,2,3,7,8,9-HxCDD | 1170 | | | |
| 1,2,3,4,6,7,8-HpCDD | 252000 | | | E J |
| OCDD | 3270000 | | | D,E J |
| 2,3,7,8-TCDF | ND | | 7.52 | V X |
| 1,2,3,7,8-PeCDF | 62.4 | | | |
| 2,3,4,7,8-PeCDF | 332 | | | |
| 1,2,3,4,7,8-HxCDF | 1730 | | | |
| 1,2,3,6,7,8-HxCDF | 352 | | | |
| 2,3,4,6,7,8-HxCDF | 653 | | | |
| 1,2,3,7,8,9-HxCDF | 355 | | | |
| 1,2,3,4,6,7,8-HpCDF | 27900 | | | |
| 1,2,3,4,7,8,9-HpCDF | 2470 | | | |
| OCDF | 158000 | | | E J |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 92.7 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 81.1 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 90.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 92.9 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 88.6 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 121 | 40 - 135 | |
| | 13C-OCDD | 166 | 40 - 135 | D,I |
| | 13C-2,3,7,8-TCDF | 90.1 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 81.0 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 83.9 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 89.6 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 92.4 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 86.2 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 81.2 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 83.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 78.6 | 40 - 135 | |
| | 13C-OCDF | 115 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 84.9 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 139 | 144 |
| Total PeCDD | 1710 | 1790 |
| Total HxCDD | 52200 | |
| Total HpCDD | 757000 | J |
| Total TCDF | 167 | 186 |
| Total PeCDF | 2210 | |
| Total HxCDF | 40300 | P J |
| Total HpCDF | 222000 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 5080**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A2-17 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32549-009 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 2.78 g | QC Batch No.: | 2975 | Date Extracted: | 23-Apr-10 |
| Date Collected: | 29-Mar-10 | %Solids: | 72.5 | Date Analyzed DB-5: | 25-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 1440 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 9.44 | | | J |
| 1,2,3,7,8-PeCDD | 137 | | | |
| 1,2,3,4,7,8-HxCDD | 718 | | | |
| 1,2,3,6,7,8-HxCDD | 3920 | | | |
| 1,2,3,7,8,9-HxCDD | 1040 | | | |
| 1,2,3,4,6,7,8-HpCDD | 181000 | | | D,E J |
| OCDD | 2630000 | | | D,E J |
| 2,3,7,8-TCDF | ND | 10.0 | | |
| 1,2,3,7,8-PeCDF | 35.4 | | | J |
| 2,3,4,7,8-PeCDF | 203 | | | |
| 1,2,3,4,7,8-HxCDF | 961 | | | |
| 1,2,3,6,7,8-HxCDF | 242 | | | |
| 2,3,4,6,7,8-HxCDF | 482 | | | |
| 1,2,3,7,8,9-HxCDF | 198 | | | |
| 1,2,3,4,6,7,8-HpCDF | 22200 | | | |
| 1,2,3,4,7,8,9-HpCDF | 1670 | | | |
| OCDF | 130000 | | | E J |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 91.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 84.1 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 94.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 96.3 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 93.4 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 89.0 | 40 - 135 | D |
| | 13C-OCDD | 138 | 40 - 135 | D,H |
| | 13C-2,3,7,8-TCDF | 87.7 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 84.6 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 85.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 87.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 86.6 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 90.5 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 94.8 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 104 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 112 | 40 - 135 | |
| | 13C-OCDF | 183 | 40 - 135 | H |
| CRS | 37Cl-2,3,7,8-TCDD | 82.3 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 122 | 169 | |
| Total PeCDD | 906 | 1020 | |
| Total HxCDD | 22500 | | |
| Total HpCDD | 368000 | 387000 | J |
| Total TCDF | 93.8 | 124 | |
| Total PeCDF | 1450 | 1480 | |
| Total HxCDF | 24500 | | P J |
| Total HpCDF | 162000 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 3840**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A2-18 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32549-010 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 2.99 g | QC Batch No.: | 2975 | Date Extracted: | 23-Apr-10 |
| Date Collected: | 29-Mar-10 | %Solids: | 67.6 | Date Analyzed DB-5: | 25-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 1430 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 7.57 | | | J |
| 1,2,3,7,8-PeCDD | ND | | 48.3 | UX |
| 1,2,3,4,7,8-HxCDD | 182 | | | |
| 1,2,3,6,7,8-HxCDD | 890 | | | |
| 1,2,3,7,8,9-HxCDD | 296 | | | |
| 1,2,3,4,6,7,8-HpCDD | 37000 | | | |
| OCDD | 583000 | | | E J |
| 2,3,7,8-TCDF | 9.35 | | | J |
| 1,2,3,7,8-PeCDF | 50.2 | | | J |
| 2,3,4,7,8-PeCDF | 393 | | | |
| 1,2,3,4,7,8-HxCDF | 994 | | | |
| 1,2,3,6,7,8-HxCDF | 192 | | | |
| 2,3,4,6,7,8-HxCDF | 278 | | | |
| 1,2,3,7,8,9-HxCDF | 218 | | | |
| 1,2,3,4,6,7,8-HpCDF | 4580 | | | |
| 1,2,3,4,7,8,9-HpCDF | 440 | | | |
| OCDF | 25100 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 93.8 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 86.0 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 90.4 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 94.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 88.8 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 86.3 | 40 - 135 | |
| | 13C-OCDD | 125 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 91.8 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 83.0 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 82.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 90.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 91.4 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 89.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 84.6 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 76.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 75.2 | 40 - 135 | |
| | 13C-OCDF | 81.3 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 89.0 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 118 | 150 |
| Total PeCDD | 323 | 380 |
| Total HxCDD | 6400 | |
| Total HpCDD | 88000 | |
| Total TCDF | 43.7 | 55.7 |
| Total PeCDF | 1780 | |
| Total HxCDF | 8290 | |
| Total HpCDF | 28600 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 1040**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A2-19 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Sediment | Lab Sample: | 32549-011 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 8.32 g | QC Batch No.: | 2956 | Date Extracted: | 19-Apr-10 |
| Date Collected: | 29-Mar-10 | %Solids: | 60.6 | Date Analyzed DB-5: | 21-Apr-10 | Dates Analyzed DB-225: | 21-Apr-10 |
| Time Collected: | 1540 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 13.6 | | | |
| 1,2,3,7,8-PeCDD | 244 | | | |
| 1,2,3,4,7,8-HxCDD | 2000 | | | |
| 1,2,3,6,7,8-HxCDD | 6970 | | | E J |
| 1,2,3,7,8,9-HxCDD | 2110 | | | |
| 1,2,3,4,6,7,8-HpCDD | 262000 | | | D,E J |
| OCDD | 709000 | | | D,E J |
| 2,3,7,8-TCDF | 11.0 | | | |
| 1,2,3,7,8-PeCDF | 62.3 | | | |
| 2,3,4,7,8-PeCDF | 303 | | | |
| 1,2,3,4,7,8-HxCDF | 1560 | | | |
| 1,2,3,6,7,8-HxCDF | 366 | | | |
| 2,3,4,6,7,8-HxCDF | 929 | | | |
| 1,2,3,7,8,9-HxCDF | 295 | | | |
| 1,2,3,4,6,7,8-HpCDF | 38100 | | | E J |
| 1,2,3,4,7,8,9-HpCDF | 3210 | | | |
| OCDF | 186000 | | | E J |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 130 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 111 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 95.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 106 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 63.4 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 83.9 | 40 - 135 | D |
| | 13C-OCDD | 481 | 40 - 135 | D,I |
| | 13C-2,3,7,8-TCDF | 99.2 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 89.6 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 96.0 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 100 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 107 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 83.9 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 95.0 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 79.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 75.2 | 40 - 135 | |
| | 13C-OCDF | 57.0 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 129 | 40 - 135 | |

| Totals | | | | |
|---|---|---|---|---|
| Total TCDD | 385 | | | |
| Total PeCDD | 3430 | | | |
| Total HxCDD | 60100 | | | J |
| Total HpCDD | 620000 | | | D J |
| Total TCDF | 264 | | 266 | P J |
| Total PeCDF | 2590 | | | P J |
| Total HxCDF | 50300 | | | P J |
| Total HpCDF | 210000 | | | J |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 5080**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A3-18 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32550-015 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 6.92 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 72.4 | Date Analyzed DB-5: | 18-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 1110 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 0.651 | | |
| 1,2,3,7,8-PeCDD | ND | 1.23 | | |
| 1,2,3,4,7,8-HxCDD | 1.41 | | | J |
| 1,2,3,6,7,8-HxCDD | ND | | 2.69 | UX |
| 1,2,3,7,8,9-HxCDD | ND | 3.63 | | |
| 1,2,3,4,6,7,8-HpCDD | 111 | | | |
| OCDD | 4200 | | | |
| 2,3,7,8-TCDF | ND | 0.460 | | |
| 1,2,3,7,8-PeCDF | ND | 0.851 | | |
| 2,3,4,7,8-PeCDF | 0.863 | | | J |
| 1,2,3,4,7,8-HxCDF | 0.955 | | | J |
| 1,2,3,6,7,8-HxCDF | ND | 0.821 | | |
| 2,3,4,6,7,8-HxCDF | ND | 0.968 | | |
| 1,2,3,7,8,9-HxCDF | ND | 1.34 | | |
| 1,2,3,4,6,7,8-HpCDF | 13.4 | | | |
| 1,2,3,4,7,8,9-HpCDF | ND | 1.38 | | |
| OCDF | 70.8 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 88.3 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 70.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 91.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 92.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 89.6 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 71.3 | 40 - 135 | |
| | 13C-OCDD | 72.7 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 83.3 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 72.1 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 70.0 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 88.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 93.8 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 85.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 80.2 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 73.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 69.1 | 40 - 135 | |
| | 13C-OCDF | 61.5 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 87.3 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 0.872 | | |
| Total PeCDD | 1.11 | | |
| Total HxCDD | 17.3 | 20.0 | |
| Total HpCDD | 260 | | |
| Total TCDF | ND | 0.365 | UX |
| Total PeCDF | 1.93 | 3.94 | |
| Total HxCDF | 16.8 | 18.2 | |
| Total HpCDF | 68.0 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 3.02**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** A3-19 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32550-016 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 8.02 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 63.4 | Date Analyzed DB-5: | 18-Apr-10 | Dates Analyzed DB-225: | 20-Apr-10 |
| Time Collected: | 1120 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | | 0.854 | UX |
| 1,2,3,7,8-PeCDD | 8.66 | | | |
| 1,2,3,4,7,8-HxCDD | 19.9 | | | |
| 1,2,3,6,7,8-HxCDD | 59.1 | | | |
| 1,2,3,7,8,9-HxCDD | 30.7 | | | |
| 1,2,3,4,6,7,8-HpCDD | 2000 | | | |
| OCDD | 23800 | | | E J |
| 2,3,7,8-TCDF | 1.19 | | | |
| 1,2,3,7,8-PeCDF | ND | | 2.45 | UX |
| 2,3,4,7,8-PeCDF | 20.3 | | | |
| 1,2,3,4,7,8-HxCDF | 36.1 | | | |
| 1,2,3,6,7,8-HxCDF | 13.7 | | | |
| 2,3,4,6,7,8-HxCDF | 24.0 | | | |
| 1,2,3,7,8,9-HxCDF | 10.5 | | | |
| 1,2,3,4,6,7,8-HpCDF | 435 | | | |
| 1,2,3,4,7,8,9-HpCDF | 38.6 | | | |
| OCDF | 2080 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 91.0 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 71.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 86.4 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 91.6 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 86.4 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 76.0 | 40 - 135 | |
| | 13C-OCDD | 105 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 83.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 69.2 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 71.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 98.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 97.6 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 84.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 76.8 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 72.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 70.5 | 40 - 135 | |
| | 13C-OCDF | 66.2 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 88.0 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 12.2 | 21.1 |
| Total PeCDD | 67.1 | 74.0 |
| Total HxCDD | 520 | 530 |
| Total HpCDD | 4670 | |
| Total TCDF | 27.6 | 29.4 |
| Total PeCDF | 144 | 147 |
| Total HxCDF | 680 | |
| Total HpCDF | 2290 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 66.8**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** A3-20 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32550-013 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 9.35 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 53.7 | Date Analyzed DB-5: | 18-Apr-10 | Dates Analyzed DB-225: | 20-Apr-10 |
| Time Collected: | 1100 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | | 1.80 | UX |
| 1,2,3,7,8-PeCDD | 14.4 | | | |
| 1,2,3,4,7,8-HxCDD | 37.7 | | | |
| 1,2,3,6,7,8-HxCDD | 118 | | | |
| 1,2,3,7,8,9-HxCDD | 69.9 | | | |
| 1,2,3,4,6,7,8-HpCDD | 4150 | | | E J |
| OCDD | 49100 | | | E J |
| 2,3,7,8-TCDF | 1.90 | | | |
| 1,2,3,7,8-PeCDF | 3.77 | | | J |
| 2,3,4,7,8-PeCDF | 25.6 | | | |
| 1,2,3,4,7,8-HxCDF | 46.5 | | | |
| 1,2,3,6,7,8-HxCDF | 22.3 | | | |
| 2,3,4,6,7,8-HxCDF | 41.0 | | | |
| 1,2,3,7,8,9-HxCDF | 11.0 | | | |
| 1,2,3,4,6,7,8-HpCDF | 815 | | | |
| 1,2,3,4,7,8,9-HpCDF | 60.7 | | | |
| OCDF | 3660 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 87.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 68.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 90.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 90.7 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 86.3 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 89.6 | 40 - 135 | |
| | 13C-OCDD | 146 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 85.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 69.4 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 71.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 90.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 96.2 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 84.2 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 82.1 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 79.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 74.1 | 40 - 135 | |
| | 13C-OCDF | 77.8 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 83.5 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 25.1 | 28.3 | |
| Total PeCDD | 108 | | |
| Total HxCDD | 884 | | |
| Total HpCDD | 8510 | | J |
| Total TCDF | 69.1 | 78.9 | |
| Total PeCDF | 277 | | |
| Total HxCDF | 991 | | |
| Total HpCDF | 3910 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 123**

a. Sample specific estimated detection limit.
b. Estimated maximum possible concentration.
c. Method detection limit.
d. Lower control limit - upper control limit.
e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)
The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 15:17

**Sample ID:** **FIELD DUPLICATE #4** **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32550-014 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 10.2 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 49.2 | Date Analyzed DB-5: | 18-Apr-10 | Dates Analyzed DB-225: | 20-Apr-10 |
| Time Collected: | NA | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 2.43 | | | |
| 1,2,3,7,8-PeCDD | 16.2 | | | |
| 1,2,3,4,7,8-HxCDD | 40.8 | | | |
| 1,2,3,6,7,8-HxCDD | 133 | | | |
| 1,2,3,7,8,9-HxCDD | 72.5 | | | |
| 1,2,3,4,6,7,8-HpCDD | 4430 | | | E J |
| OCDD | 51800 | | | E J |
| 2,3,7,8-TCDF | 2.64 | | | |
| 1,2,3,7,8-PeCDF | 4.47 | | | J |
| 2,3,4,7,8-PeCDF | 30.6 | | | |
| 1,2,3,4,7,8-HxCDF | 54.2 | | | |
| 1,2,3,6,7,8-HxCDF | 23.3 | | | |
| 2,3,4,6,7,8-HxCDF | 48.9 | | | |
| 1,2,3,7,8,9-HxCDF | 11.9 | | | |
| 1,2,3,4,6,7,8-HpCDF | 925 | | | |
| 1,2,3,4,7,8,9-HpCDF | 67.2 | | | |
| OCDF | 3950 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 85.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 67.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 85.8 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 87.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 83.6 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 81.1 | 40 - 135 | |
| | 13C-OCDD | 132 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 79.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 67.1 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 68.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 83.9 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 88.5 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 78.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 75.8 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 71.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 67.9 | 40 - 135 | |
| | 13C-OCDF | 68.0 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 81.1 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 28.5 | 32.7 | |
| Total PeCDD | 114 | 123 | |
| Total HxCDD | 970 | | |
| Total HpCDD | 8980 | | J |
| Total TCDF | 81.8 | 92.3 | |
| Total PeCDF | 309 | 310 | |
| Total HxCDF | 1130 | | |
| Total HpCDF | 4200 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min):** **138**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** A3-21 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32550-019 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 9.80 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 51.0 | Date Analyzed DB-5: | 18-Apr-10 | Dates Analyzed DB-225: | 20-Apr-10 |
| Time Collected: | 1145 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 32.9 | | | |
| 1,2,3,7,8-PeCDD | 375 | | | |
| 1,2,3,4,7,8-HxCDD | 1360 | | | |
| 1,2,3,6,7,8-HxCDD | 4960 | | | E H |
| 1,2,3,7,8,9-HxCDD | 2230 | | | |
| 1,2,3,4,6,7,8-HpCDD | 160000 | | | D,E H |
| OCDD | 570000 | | | D,E H |
| 2,3,7,8-TCDF | 16.2 | | | |
| 1,2,3,7,8-PeCDF | 92.7 | | | |
| 2,3,4,7,8-PeCDF | 721 | | | |
| 1,2,3,4,7,8-HxCDF | 2580 | | | |
| 1,2,3,6,7,8-HxCDF | 759 | | | |
| 2,3,4,6,7,8-HxCDF | 1360 | | | |
| 1,2,3,7,8,9-HxCDF | 441 | | | |
| 1,2,3,4,6,7,8-HpCDF | 40600 | | | E H |
| 1,2,3,4,7,8,9-HpCDF | 3290 | | | |
| OCDF | 207000 | | | E H |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 94.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 73.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 97.8 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 107 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 87.0 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 132 | 40 - 135 | D |
| | 13C-OCDD | 602 | 40 - 135 | D,I,H |
| | 13C-2,3,7,8-TCDF | 83.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 70.9 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 70.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 113 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 110 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 88.7 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 85.4 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 124 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 73.4 | 40 - 135 | |
| | 13C-OCDF | 127 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 96.7 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 296 | 312 | |
| Total PeCDD | 2730 | | |
| Total HxCDD | 47300 | | H |
| Total HpCDD | 365000 | | H |
| Total TCDF | 394 | 396 | |
| Total PeCDF | 5700 | | P H |
| Total HxCDF | 57400 | | P H |
| Total HpCDF | 277000 | | H |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 4270**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** A3-22 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32550-018 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 11.9 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 42.5 | Date Analyzed DB-5: | 18-Apr-10 | Dates Analyzed DB-225: | 20-Apr-10 |
| Time Collected: | 1135 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 22.4 | | | |
| 1,2,3,7,8-PeCDD | 252 | | | |
| 1,2,3,4,7,8-HxCDD | 780 | | | |
| 1,2,3,6,7,8-HxCDD | 2580 | | | |
| 1,2,3,7,8,9-HxCDD | 1370 | | | |
| 1,2,3,4,6,7,8-HpCDD | 105000 | | | D,E,J |
| OCDD | 471000 | | | D,E,J |
| 2,3,7,8-TCDF | 12.8 | | | |
| 1,2,3,7,8-PeCDF | 68.1 | | | |
| 2,3,4,7,8-PeCDF | 531 | | | |
| 1,2,3,4,7,8-HxCDF | 1820 | | | |
| 1,2,3,6,7,8-HxCDF | 545 | | | |
| 2,3,4,6,7,8-HxCDF | 920 | | | |
| 1,2,3,7,8,9-HxCDF | 322 | | | |
| 1,2,3,4,6,7,8-HpCDF | 23700 | | | E,J |
| 1,2,3,4,7,8,9-HpCDF | 1770 | | | |
| OCDF | 98200 | | | E,J |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 91.7 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 74.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 95.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 105 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 90.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 74.4 | 40 - 135 | D |
| | 13C-OCDD | 163 | 40 - 135 | D,I,H |
| | 13C-2,3,7,8-TCDF | 83.7 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 68.5 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 74.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 103 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 98.7 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 89.5 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 87.4 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 117 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 73.5 | 40 - 135 | |
| | 13C-OCDF | 134 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 91.4 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 196 | 216 | |
| Total PeCDD | 1480 | | |
| Total HxCDD | 21900 | | |
| Total HpCDD | 223000 | | J |
| Total TCDF | 276 | 282 | |
| Total PeCDF | 4140 | | |
| Total HxCDF | 33900 | | J,H |
| Total HpCDF | 150000 | | J |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 2750**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 15:17

**Sample ID:** A3-23 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32550-017 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 9.07 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 55.3 | Date Analyzed DB-5: | 18-Apr-10 | Dates Analyzed DB-225: | 20-Apr-10 |
| Time Collected: | 1125 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 4.98 | | | |
| 1,2,3,7,8-PeCDD | 57.6 | | | |
| 1,2,3,4,7,8-HxCDD | 165 | | | |
| 1,2,3,6,7,8-HxCDD | 536 | | | |
| 1,2,3,7,8,9-HxCDD | 258 | | | |
| 1,2,3,4,6,7,8-HpCDD | 17200 | | | E J |
| OCDD | 137000 | | | D,E J |
| 2,3,7,8-TCDF | 13.1 | | | |
| 1,2,3,7,8-PeCDF | 56.0 | | | |
| 2,3,4,7,8-PeCDF | 514 | | | |
| 1,2,3,4,7,8-HxCDF | 1020 | | | |
| 1,2,3,6,7,8-HxCDF | 227 | | | |
| 2,3,4,6,7,8-HxCDF | 365 | | | |
| 1,2,3,7,8,9-HxCDF | 260 | | | |
| 1,2,3,4,6,7,8-HpCDF | 4510 | | | E J |
| 1,2,3,4,7,8,9-HpCDF | 460 | | | |
| OCDF | 18900 | | | E J |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 88.1 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 73.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 92.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 97.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 90.1 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 117 | 40 - 135 | |
| | 13C-OCDD | 118 | 40 - 135 | D |
| | 13C-2,3,7,8-TCDF | 83.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 72.2 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 75.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 104 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 104 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 85.5 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 82.6 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 88.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 71.9 | 40 - 135 | |
| | 13C-OCDF | 104 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 84.0 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 65.7 | 79.4 | |
| Total PeCDD | 566 | | |
| Total HxCDD | 6310 | | |
| Total HpCDD | 44700 | | J |
| Total TCDF | 194 | 201 | |
| Total PeCDF | 2610 | | |
| Total HxCDF | 10300 | | |
| Total HpCDF | 31600 | | J |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min):** 771

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** A3-24 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32550-020 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 9.14 g | QC Batch No.: | 2951 | Date Extracted: | 16-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 54.9 | Date Analyzed DB-5: | 18-Apr-10 | Dates Analyzed DB-225: | 20-Apr-10 |
| Time Collected: | 1200 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 37.5 | | | |
| 1,2,3,7,8-PeCDD | 429 | | | |
| 1,2,3,4,7,8-HxCDD | 1160 | | | |
| 1,2,3,6,7,8-HxCDD | 3880 | | | |
| 1,2,3,7,8,9-HxCDD | 2050 | | | |
| 1,2,3,4,6,7,8-HpCDD | 117000 | | | D,E |
| OCDD | 524000 | | | D,E |
| 2,3,7,8-TCDF | 61.5 | | | |
| 1,2,3,7,8-PeCDF | 302 | | | |
| 2,3,4,7,8-PeCDF | 2970 | | | |
| 1,2,3,4,7,8-HxCDF | 7740 | | | E |
| 1,2,3,6,7,8-HxCDF | 1730 | | | |
| 2,3,4,6,7,8-HxCDF | 2320 | | | |
| 1,2,3,7,8,9-HxCDF | 1650 | | | |
| 1,2,3,4,6,7,8-HpCDF | 26800 | | | E |
| 1,2,3,4,7,8,9-HpCDF | 2710 | | | |
| OCDF | 100000 | | | E |

| Labeled Standard | | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 84.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 67.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 85.8 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 92.2 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 84.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 73.3 | 40 - 135 | D |
| | 13C-OCDD | 103 | 40 - 135 | D |
| | 13C-2,3,7,8-TCDF | 78.7 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 68.4 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 68.6 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 116 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 103 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 80.7 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 75.8 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 101 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 65.2 | 40 - 135 | |
| | 13C-OCDF | 96.5 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 84.5 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 311 | 318 | |
| Total PeCDD | 2080 | | |
| Total HxCDD | 28100 | | |
| Total HpCDD | 241000 | | |
| Total TCDF | 760 | 769 | P |
| Total PeCDF | 16300 | | P |
| Total HxCDF | 62200 | | |
| Total HpCDF | 161000 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 5080**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 21-Apr-2010 15:17

**Sample ID:** A4-1 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-018 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.89 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 63.5 | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 1050 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.651 | | | J |
| 1,2,3,7,8-PeCDD | 2.07 | | | J |
| 1,2,3,4,7,8-HxCDD | 3.32 | | | J |
| 1,2,3,6,7,8-HxCDD | 6.92 | | | |
| 1,2,3,7,8,9-HxCDD | 6.70 | | | |
| 1,2,3,4,6,7,8-HpCDD | 248 | | | |
| OCDD | 10600 | | | E J |
| 2,3,7,8-TCDF | 0.756 | | | J |
| 1,2,3,7,8-PeCDF | 0.583 | | | J |
| 2,3,4,7,8-PeCDF | 3.39 | | | J |
| 1,2,3,4,7,8-HxCDF | 2.01 | | | J |
| 1,2,3,6,7,8-HxCDF | 1.74 | | | J |
| 2,3,4,6,7,8-HxCDF | 2.51 | | | J |
| 1,2,3,7,8,9-HxCDF | ND | 1.15 | | |
| 1,2,3,4,6,7,8-HpCDF | 23.7 | | | |
| 1,2,3,4,7,8,9-HpCDF | 2.37 | | | J |
| OCDF | 76.4 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 89.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 80.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 92.5 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 95.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 90.3 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 79.4 | 40 - 135 | |
| | 13C-OCDD | 91.6 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 87.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 80.1 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 83.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 89.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 91.3 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 87.5 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 86.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 76.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 75.1 | 40 - 135 | |
| | 13C-OCDF | 76.4 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 87.4 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 6.03 | 8.65 |
| Total PeCDD | 14.4 | 18.6 |
| Total HxCDD | 79.5 | |
| Total HpCDD | 567 | |
| Total TCDF | 14.5 | 16.4 |
| Total PeCDF | 28.8 | 29.4 |
| Total HxCDF | 47.7 | 48.2 |
| Total HpCDF | 95.9 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 12.1**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A4-2 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-019 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.74 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 64.8 | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 1055 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | | 0.457 | UX |
| 1,2,3,7,8-PeCDD | ND | | 1.44 | UX |
| 1,2,3,4,7,8-HxCDD | 4.17 | | | J |
| 1,2,3,6,7,8-HxCDD | 10.2 | | | |
| 1,2,3,7,8,9-HxCDD | 7.02 | | | |
| 1,2,3,4,6,7,8-HpCDD | 352 | | | |
| OCDD | 12100 | | | EJ |
| 2,3,7,8-TCDF | ND | | 0.624 | UX |
| 1,2,3,7,8-PeCDF | 0.631 | | | J |
| 2,3,4,7,8-PeCDF | 5.76 | | | |
| 1,2,3,4,7,8-HxCDF | 3.26 | | | J |
| 1,2,3,6,7,8-HxCDF | 1.99 | | | J |
| 2,3,4,6,7,8-HxCDF | 3.86 | | | J |
| 1,2,3,7,8,9-HxCDF | 0.976 | | | J |
| 1,2,3,4,6,7,8-HpCDF | 42.3 | | | |
| 1,2,3,4,7,8,9-HpCDF | 3.84 | | | J |
| OCDF | 186 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 91.1 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 107 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 89.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 89.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 88.2 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 81.1 | 40 - 135 | |
| | 13C-OCDD | 94.3 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 88.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 107 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 113 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 86.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 88.1 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 83.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 81.4 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 76.0 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 75.4 | 40 - 135 | |
| | 13C-OCDF | 76.8 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 92.0 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 7.34 | 7.80 |
| Total PeCDD | 10.2 | 19.8 |
| Total HxCDD | 96.6 | |
| Total HpCDD | 777 | |
| Total TCDF | 12.1 | 14.1 |
| Total PeCDF | 45.2 | 45.6 |
| Total HxCDF | 80.9 | 81.7 |
| Total HpCDF | 208 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 12.6**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A4-3 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-020 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.46 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 67.2 | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 1100 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 0.551 | | |
| 1,2,3,7,8-PeCDD | ND | | 0.645 | UX |
| 1,2,3,4,7,8-HxCDD | 2.32 | | | J |
| 1,2,3,6,7,8-HxCDD | 5.06 | | | |
| 1,2,3,7,8,9-HxCDD | 4.13 | | | J |
| 1,2,3,4,6,7,8-HpCDD | 209 | | | |
| OCDD | 9210 | | | EJ |
| 2,3,7,8-TCDF | 0.387 | | | J |
| 1,2,3,7,8-PeCDF | ND | 0.581 | | |
| 2,3,4,7,8-PeCDF | ND | | 1.01 | UX |
| 1,2,3,4,7,8-HxCDF | 1.29 | | | J |
| 1,2,3,6,7,8-HxCDF | ND | | 0.540 | UX |
| 2,3,4,6,7,8-HxCDF | 0.993 | | | J |
| 1,2,3,7,8,9-HxCDF | ND | 0.399 | | |
| 1,2,3,4,6,7,8-HpCDF | 19.6 | | | |
| 1,2,3,4,7,8,9-HpCDF | 1.57 | | | J |
| OCDF | 87.6 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 88.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 77.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 91.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 86.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 87.4 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 79.9 | 40 - 135 | |
| | 13C-OCDD | 86.9 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 84.7 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 82.2 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 84.1 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 90.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 91.0 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 85.2 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 83.4 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 79.0 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 75.7 | 40 - 135 | |
| | 13C-OCDF | 75.4 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 85.8 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 1.25 | 1.71 |
| Total PeCDD | 4.17 | 7.48 |
| Total HxCDD | 46.2 | |
| Total HpCDD | 461 | |
| Total TCDF | 1.40 | 2.21 |
| Total PeCDF | 6.03 | 7.04 |
| Total HxCDF | 22.7 | 23.2 |
| Total HpCDF | 83.1 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 6.51**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A4-4 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-017 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 9.19 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 54.7 | Date Analyzed DB-5: | 20-Apr-10 | Dates Analyzed DB-225: | 21-Apr-10 |
| Time Collected: | 1020 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 1.46 | | | |
| 1,2,3,7,8-PeCDD | 4.65 | | | J |
| 1,2,3,4,7,8-HxCDD | 10.6 | | | |
| 1,2,3,6,7,8-HxCDD | 24.6 | | | |
| 1,2,3,7,8,9-HxCDD | 18.0 | | | |
| 1,2,3,4,6,7,8-HpCDD | 755 | | | |
| OCDD | 15900 | | | E J |
| 2,3,7,8-TCDF | 1.32 | | | |
| 1,2,3,7,8-PeCDF | 1.16 | | | J |
| 2,3,4,7,8-PeCDF | 9.87 | | | |
| 1,2,3,4,7,8-HxCDF | 7.65 | | | |
| 1,2,3,6,7,8-HxCDF | 6.01 | | | |
| 2,3,4,6,7,8-HxCDF | 9.71 | | | |
| 1,2,3,7,8,9-HxCDF | 2.45 | | | J |
| 1,2,3,4,6,7,8-HpCDF | 132 | | | |
| 1,2,3,4,7,8,9-HpCDF | 10.4 | | | |
| OCDF | 477 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 89.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 82.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 86.9 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 92.5 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 89.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 81.1 | 40 - 135 | |
| | 13C-OCDD | 91.4 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 87.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 80.8 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 85.1 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 86.9 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 89.0 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 83.5 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 81.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 75.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 73.3 | 40 - 135 | |
| | 13C-OCDF | 73.6 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 85.1 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 14.2 | 18.4 | |
| Total PeCDD | 46.4 | | |
| Total HxCDD | 221 | | |
| Total HpCDD | 1620 | | |
| Total TCDF | 41.0 | 43.0 | |
| Total PeCDF | 95.8 | 96.6 | P J |
| Total HxCDF | 198 | 199 | P J |
| Total HpCDF | 519 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 31.0**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A4-5 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-015 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.86 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 64.3 | Date Analyzed DB-5: | 20-Apr-10 | Dates Analyzed DB-225: | 21-Apr-10 |
| Time Collected: | 1010 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | | 0.541 | UX |
| 1,2,3,7,8-PeCDD | 2.32 | | | J |
| 1,2,3,4,7,8-HxCDD | 3.44 | | | J |
| 1,2,3,6,7,8-HxCDD | 7.68 | | | |
| 1,2,3,7,8,9-HxCDD | 6.17 | | | |
| 1,2,3,4,6,7,8-HpCDD | 215 | | | |
| OCDD | 6340 | | | |
| 2,3,7,8-TCDF | 2.65 | | | |
| 1,2,3,7,8-PeCDF | 1.57 | | | J |
| 2,3,4,7,8-PeCDF | 63.5 | | | |
| 1,2,3,4,7,8-HxCDF | 4.40 | | | J |
| 1,2,3,6,7,8-HxCDF | 6.75 | | | |
| 2,3,4,6,7,8-HxCDF | 19.5 | | | |
| 1,2,3,7,8,9-HxCDF | 2.89 | | | J |
| 1,2,3,4,6,7,8-HpCDF | 25.5 | | | |
| 1,2,3,4,7,8,9-HpCDF | 2.05 | | | J |
| OCDF | 57.4 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 89.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 85.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 90.4 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 93.6 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 86.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 70.5 | 40 - 135 | |
| | 13C-OCDD | 75.5 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 85.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 84.5 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 86.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 91.9 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 90.2 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 85.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 80.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 69.1 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 68.1 | 40 - 135 | |
| | 13C-OCDF | 64.3 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 87.2 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 17.6 | 20.2 | |
| Total PeCDD | 37.5 | | |
| Total HxCDD | 119 | | |
| Total HpCDD | 527 | | |
| Total TCDF | 144 | 147 | |
| Total PeCDF | 478 | | P |
| Total HxCDF | 255 | | |
| Total HpCDF | 85.3 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 31.1**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors (WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A4-6 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-016 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 9.35 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 53.6 | Date Analyzed DB-5: | 20-Apr-10 | Dates Analyzed DB-225: | 21-Apr-10 |
| Time Collected: | 1015 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 1.73 | | | |
| 1,2,3,7,8-PeCDD | 7.24 | | | |
| 1,2,3,4,7,8-HxCDD | 15.5 | | | |
| 1,2,3,6,7,8-HxCDD | 39.4 | | | |
| 1,2,3,7,8,9-HxCDD | 25.3 | | | |
| 1,2,3,4,6,7,8-HpCDD | 1350 | | | |
| OCDD | 21100 | | | E |
| 2,3,7,8-TCDF | 2.36 | | | |
| 1,2,3,7,8-PeCDF | 2.39 | | | J |
| 2,3,4,7,8-PeCDF | 12.9 | | | |
| 1,2,3,4,7,8-HxCDF | 12.3 | | | |
| 1,2,3,6,7,8-HxCDF | 8.14 | | | |
| 2,3,4,6,7,8-HxCDF | 13.8 | | | |
| 1,2,3,7,8,9-HxCDF | 3.62 | | | J |
| 1,2,3,4,6,7,8-HpCDF | 204 | | | |
| 1,2,3,4,7,8,9-HpCDF | 15.8 | | | |
| OCDF | 759 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 95.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 83.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 92.6 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 93.3 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 90.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 88.9 | 40 - 135 | |
| | 13C-OCDD | 134 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 87.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 85.1 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 85.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 89.3 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 91.4 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 86.1 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 83.8 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 79.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 82.3 | 40 - 135 | |
| | 13C-OCDF | 100 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 93.6 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 26.2 | 27.1 | |
| Total PeCDD | 76.7 | | |
| Total HxCDD | 548 | | |
| Total HpCDD | 4850 | | |
| Total TCDF | 62.9 | 67.6 | P |
| Total PeCDF | 123 | 125 | P |
| Total HxCDF | 311 | | P |
| Total HpCDF | 867 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 47.2**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A4-7 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-007 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.85 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 63.8 | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0830 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 0.247 | | |
| 1,2,3,7,8-PeCDD | 0.623 | | | J |
| 1,2,3,4,7,8-HxCDD | 1.43 | | | J |
| 1,2,3,6,7,8-HxCDD | 2.87 | | | J |
| 1,2,3,7,8,9-HxCDD | 2.53 | | | J |
| 1,2,3,4,6,7,8-HpCDD | 106 | | | |
| OCDD | 5030 | | | |
| 2,3,7,8-TCDF | ND | 0.271 | | |
| 1,2,3,7,8-PeCDF | ND | 0.660 | | |
| 2,3,4,7,8-PeCDF | 0.971 | | | J |
| 1,2,3,4,7,8-HxCDF | 0.767 | | | J |
| 1,2,3,6,7,8-HxCDF | 0.579 | | | J |
| 2,3,4,6,7,8-HxCDF | 0.912 | | | J |
| 1,2,3,7,8,9-HxCDF | ND | 0.546 | | |
| 1,2,3,4,6,7,8-HpCDF | 11.8 | | | |
| 1,2,3,4,7,8,9-HpCDF | 1.22 | | | J |
| OCDF | 42.1 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 87.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 84.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 89.8 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 87.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 85.0 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 79.2 | 40 - 135 | |
| | 13C-OCDD | 102 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 86.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 88.8 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 92.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 87.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 89.0 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 85.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 81.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 75.0 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 76.1 | 40 - 135 | |
| | 13C-OCDF | 88.4 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 88.8 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | ND | 0.713 | |
| Total PeCDD | 4.03 | | 4.93 |
| Total HxCDD | 34.8 | | |
| Total HpCDD | 244 | | |
| Total TCDF | 2.25 | | |
| Total PeCDF | 7.30 | | 7.82 |
| Total HxCDF | 17.1 | | 17.3 |
| Total HpCDF | 44.4 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 4.54**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors (WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A4-8 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32551-008 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.51 g | QC Batch No.: | 2956 | Date Extracted: | 19-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 66.9 | Date Analyzed DB-5: | 21-Apr-10 | Dates Analyzed DB-225: | 21-Apr-10 |
| Time Collected: | 0835 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.716 | | | J |
| 1,2,3,7,8-PeCDD | 3.48 | | | J |
| 1,2,3,4,7,8-HxCDD | 7.66 | | | |
| 1,2,3,6,7,8-HxCDD | 16.0 | | | |
| 1,2,3,7,8,9-HxCDD | 13.1 | | | |
| 1,2,3,4,6,7,8-HpCDD | 474 | | | |
| OCDD | 8690 | | | E J |
| 2,3,7,8-TCDF | 0.820 | | | J |
| 1,2,3,7,8-PeCDF | 0.528 | | | J |
| 2,3,4,7,8-PeCDF | 5.98 | | | |
| 1,2,3,4,7,8-HxCDF | 5.21 | | | |
| 1,2,3,6,7,8-HxCDF | 3.48 | | | J |
| 2,3,4,6,7,8-HxCDF | 6.04 | | | |
| 1,2,3,7,8,9-HxCDF | 1.37 | | | J |
| 1,2,3,4,6,7,8-HpCDF | 82.4 | | | |
| 1,2,3,4,7,8,9-HpCDF | 5.79 | | | |
| OCDF | 280 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 89.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 77.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 88.6 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 94.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 91.6 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 80.7 | 40 - 135 | |
| | 13C-OCDD | 100 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 87.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 82.4 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 80.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 88.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 92.4 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 86.7 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 87.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 79.0 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 76.9 | 40 - 135 | |
| | 13C-OCDF | 87.2 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 84.0 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 5.24 | 6.11 |
| Total PeCDD | 30.0 | |
| Total HxCDD | 154 | |
| Total HpCDD | 1030 | |
| Total TCDF | 22.0 | 23.3 |
| Total PeCDF | 54.9 | 55.5 |
| Total HxCDF | 115 | |
| Total HpCDF | 290 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 19.7**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 10:23

**Sample ID:** **FIELD DUPLICATE #6** **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Soil | Lab Sample: | 32551-009 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.31 g | QC Batch No.: | 2956 | Date Extracted: | 19-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 69.0 | Date Analyzed DB-5: | 21-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | NA | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.635 | | | J |
| 1,2,3,7,8-PeCDD | 3.41 | | | J |
| 1,2,3,4,7,8-HxCDD | 7.05 | | | |
| 1,2,3,6,7,8-HxCDD | 13.7 | | | |
| 1,2,3,7,8,9-HxCDD | 11.4 | | | |
| 1,2,3,4,6,7,8-HpCDD | 431 | | | |
| OCDD | 8570 | | | E J |
| 2,3,7,8-TCDF | 0.873 | | | J |
| 1,2,3,7,8-PeCDF | 0.691 | | | J |
| 2,3,4,7,8-PeCDF | 5.19 | | | |
| 1,2,3,4,7,8-HxCDF | 4.28 | | | J |
| 1,2,3,6,7,8-HxCDF | 3.11 | | | J |
| 2,3,4,6,7,8-HxCDF | 4.98 | | | |
| 1,2,3,7,8,9-HxCDF | 1.26 | | | J |
| 1,2,3,4,6,7,8-HpCDF | 75.1 | | | |
| 1,2,3,4,7,8,9-HpCDF | 6.03 | | | |
| OCDF | 246 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 93.3 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 81.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 90.5 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 95.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 89.1 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 83.9 | 40 - 135 | |
| | 13C-OCDD | 89.1 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 87.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 81.2 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 82.9 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 91.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 93.1 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 87.6 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 89.4 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 81.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 77.8 | 40 - 135 | |
| | 13C-OCDF | 78.2 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 88.1 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 5.94 | 8.34 |
| Total PeCDD | 25.2 | 29.0 |
| Total HxCDD | 149 | |
| Total HpCDD | 965 | |
| Total TCDF | 15.2 | 18.5 |
| Total PeCDF | 51.4 | 52.0 |
| Total HxCDF | 104 | |
| Total HpCDF | 264 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 18.1**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 07:30

**Sample ID:** A4-9 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Soil | Lab Sample: | 32551-010 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 8.09 g | QC Batch No.: | 2956 | Date Extracted: | 19-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 62.0 | Date Analyzed DB-5: | 21-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0840 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.245 | | | J |
| 1,2,3,7,8-PeCDD | ND | 0.620 | | |
| 1,2,3,4,7,8-HxCDD | ND | | 1.45 | UX |
| 1,2,3,6,7,8-HxCDD | 1.67 | | | J |
| 1,2,3,7,8,9-HxCDD | 1.82 | | | J |
| 1,2,3,4,6,7,8-HpCDD | 59.6 | | | |
| OCDD | 1570 | | | |
| 2,3,7,8-TCDF | ND | 0.379 | | |
| 1,2,3,7,8-PeCDF | ND | 0.512 | | |
| 2,3,4,7,8-PeCDF | ND | 0.933 | | |
| 1,2,3,4,7,8-HxCDF | ND | 0.413 | | |
| 1,2,3,6,7,8-HxCDF | ND | 0.417 | | |
| 2,3,4,6,7,8-HxCDF | ND | 0.484 | | |
| 1,2,3,7,8,9-HxCDF | ND | 0.363 | | |
| 1,2,3,4,6,7,8-HpCDF | 2.54 | | | J |
| 1,2,3,4,7,8,9-HpCDF | ND | 0.676 | | |
| OCDF | 7.21 | | | J |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 93.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 97.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 95.8 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 97.7 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 94.0 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 87.2 | 40 - 135 | |
| | 13C-OCDD | 85.5 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 91.8 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 106 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 105 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 90.6 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 92.4 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 89.2 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 91.2 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 83.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 82.1 | 40 - 135 | |
| | 13C-OCDF | 76.7 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 89.5 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 0.493 | | 0.897 |
| Total PeCDD | 3.36 | | 4.05 |
| Total HxCDD | 25.6 | | 27.0 |
| Total HpCDD | 148 | | |
| Total TCDF | ND | 0.379 | |
| Total PeCDF | 1.59 | | |
| Total HxCDF | 2.07 | | 3.30 |
| Total HpCDF | 2.54 | | 7.23 |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 1.69**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 07:30

**Sample ID:** A4-10 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-011 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 6.90 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 72.4 | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0845 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 0.211 | | |
| 1,2,3,7,8-PeCDD | 0.830 | | | J |
| 1,2,3,4,7,8-HxCDD | 2.04 | | | J |
| 1,2,3,6,7,8-HxCDD | 2.22 | | | J |
| 1,2,3,7,8,9-HxCDD | 2.27 | | | J |
| 1,2,3,4,6,7,8-HpCDD | 84.0 | | | |
| OCDD | 3260 | | | |
| 2,3,7,8-TCDF | ND | 0.349 | | |
| 1,2,3,7,8-PeCDF | ND | 0.404 | | |
| 2,3,4,7,8-PeCDF | ND | 0.403 | | |
| 1,2,3,4,7,8-HxCDF | ND | 0.325 | | |
| 1,2,3,6,7,8-HxCDF | ND | 0.320 | | |
| 2,3,4,6,7,8-HxCDF | ND | 0.407 | | |
| 1,2,3,7,8,9-HxCDF | ND | 0.539 | | |
| 1,2,3,4,6,7,8-HpCDF | ND | 0.582 | | |
| 1,2,3,4,7,8,9-HpCDF | ND | 0.429 | | |
| OCDF | ND | | 1.42 | UX |
| **Totals** | | | | |
| Total TCDD | ND | | 0.336 | UX |
| Total PeCDD | 6.56 | | 7.04 | |
| Total HxCDD | 41.7 | | | |
| Total HpCDD | 229 | | | |
| Total TCDF | ND | | 0.390 | UX |
| Total PeCDF | ND | 0.404 | | |
| Total HxCDF | 0.391 | | 0.726 | |
| Total HpCDF | ND | | 1.03 | UX |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 87.0 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 81.0 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 85.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 90.1 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 85.1 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 72.7 | 40 - 135 | |
| | 13C-OCDD | 70.2 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 79.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 81.4 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 82.9 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 87.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 88.4 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 81.6 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 77.8 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 70.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 67.3 | 40 - 135 | |
| | 13C-OCDF | 62.5 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 84.1 | 40 - 135 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 3.30**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A5-6 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Sediment | Lab Sample: | 32549-013 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 9.24 g | QC Batch No.: | 2956 | Date Extracted: | 19-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 54.3 | Date Analyzed DB-5: | 21-Apr-10 | Dates Analyzed DB-225: | 21-Apr-10 |
| Time Collected: | 0815 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 3.99 | | | |
| 1,2,3,7,8-PeCDD | 32.5 | | | |
| 1,2,3,4,7,8-HxCDD | 81.2 | | | |
| 1,2,3,6,7,8-HxCDD | 277 | | | |
| 1,2,3,7,8,9-HxCDD | 123 | | | |
| 1,2,3,4,6,7,8-HpCDD | 9900 | | | E |
| OCDD | 94900 | | | E |
| 2,3,7,8-TCDF | 1.55 | | | |
| 1,2,3,7,8-PeCDF | 6.21 | | | |
| 2,3,4,7,8-PeCDF | 35.5 | | | |
| 1,2,3,4,7,8-HxCDF | 76.3 | | | |
| 1,2,3,6,7,8-HxCDF | 24.6 | | | |
| 2,3,4,6,7,8-HxCDF | 61.5 | | | |
| 1,2,3,7,8,9-HxCDF | 22.4 | | | |
| 1,2,3,4,6,7,8-HpCDF | 1380 | | | |
| 1,2,3,4,7,8,9-HpCDF | 118 | | | |
| OCDF | 7430 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 91.8 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 81.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 88.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 92.0 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 87.8 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 90.4 | 40 - 135 | |
| | 13C-OCDD | 162 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 89.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 82.4 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 85.0 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 92.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 91.5 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 85.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 84.6 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 80.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 76.3 | 40 - 135 | |
| | 13C-OCDF | 117 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 85.4 | 40 - 135 | |

| Totals | | | | |
|---|---|---|---|---|
| Total TCDD | 64.2 | | | |
| Total PeCDD | 325 | | | |
| Total HxCDD | 2910 | | | |
| Total HpCDD | 25500 | | | |
| Total TCDF | 41.0 | 45.6 | | P |
| Total PeCDF | 304 | 305 | | P |
| Total HxCDF | 2290 | | | |
| Total HpCDF | 8560 | | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 259**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** **FIELD DUPLICATE #2** **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Sediment | Lab Sample: | 32549-014 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 10.3 g | QC Batch No.: | 2956 | Date Extracted: | 19-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 48.5 | Date Analyzed DB-5: | 21-Apr-10 | Dates Analyzed DB-225: | 21-Apr-10 |
| Time Collected: | NA | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 4.34 | | | |
| 1,2,3,7,8-PeCDD | 44.3 | | | |
| 1,2,3,4,7,8-HxCDD | 121 | | | |
| 1,2,3,6,7,8-HxCDD | 405 | | | |
| 1,2,3,7,8,9-HxCDD | 190 | | | |
| 1,2,3,4,6,7,8-HpCDD | 15000 | | | E |
| OCDD | 167000 | | | D,E |
| 2,3,7,8-TCDF | 1.88 | | | |
| 1,2,3,7,8-PeCDF | 7.19 | | | |
| 2,3,4,7,8-PeCDF | 41.6 | | | |
| 1,2,3,4,7,8-HxCDF | 105 | | | |
| 1,2,3,6,7,8-HxCDF | 36.1 | | | |
| 2,3,4,6,7,8-HxCDF | 77.9 | | | |
| 1,2,3,7,8,9-HxCDF | 25.6 | | | |
| 1,2,3,4,6,7,8-HpCDF | 2350 | | | |
| 1,2,3,4,7,8,9-HpCDF | 173 | | | |
| OCDF | 8960 | | | E |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 92.0 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 89.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 93.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 99.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 96.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 116 | 40 - 135 | |
| | 13C-OCDD | 139 | 40 - 135 | D |
| | 13C-2,3,7,8-TCDF | 86.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 93.3 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 95.9 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 93.4 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 93.8 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 88.6 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 92.4 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 88.0 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 84.3 | 40 - 135 | |
| | 13C-OCDF | 149 | 40 - 135 | H |
| CRS | 37Cl-2,3,7,8-TCDD | 86.6 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 66.4 | 69.8 | |
| Total PeCDD | 414 | | |
| Total HxCDD | 3680 | | |
| Total HpCDD | 37000 | | |
| Total TCDF | 47.3 | 50.0 | P |
| Total PeCDF | 352 | | P |
| Total HxCDF | 2680 | | |
| Total HpCDF | 12800 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 386**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A5-7 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Sediment | Lab Sample: | 32549-015 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 10.0 g | QC Batch No.: | 2956 | Date Extracted: | 19-Apr-10 |
| Date Collected: | 30-Mar-10 | %Solids: | 50.5 | Date Analyzed DB-5: | 21-Apr-10 | Dates Analyzed DB-225: | 21-Apr-10 |
| Time Collected: | 1820 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 8.00 | | | |
| 1,2,3,7,8-PeCDD | 75.6 | | | |
| 1,2,3,4,7,8-HxCDD | 194 | | | |
| 1,2,3,6,7,8-HxCDD | 823 | | | |
| 1,2,3,7,8,9-HxCDD | 314 | | | |
| 1,2,3,4,6,7,8-HpCDD | 23500 | | | E J |
| OCDD | 214000 | | | D,E J |
| 2,3,7,8-TCDF | 2.81 | | | |
| 1,2,3,7,8-PeCDF | 11.5 | | | |
| 2,3,4,7,8-PeCDF | 70.6 | | | |
| 1,2,3,4,7,8-HxCDF | 187 | | | |
| 1,2,3,6,7,8-HxCDF | 61.3 | | | |
| 2,3,4,6,7,8-HxCDF | 154 | | | |
| 1,2,3,7,8,9-HxCDF | 48.7 | | | |
| 1,2,3,4,6,7,8-HpCDF | 4340 | | | E J |
| 1,2,3,4,7,8,9-HpCDF | 358 | | | |
| OCDF | 17800 | | | E J |

| Labeled Standard | | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 91.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 88.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 93.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 95.1 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 94.1 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 145 | 40 - 135 | H |
| | 13C-OCDD | 155 | 40 - 135 | D,H |
| | 13C-2,3,7,8-TCDF | 88.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 89.7 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 92.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 95.4 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 93.6 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 87.1 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 88.3 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 101 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 101 | 40 - 135 | |
| | 13C-OCDF | 185 | 40 - 135 | H |
| CRS | 37Cl-2,3,7,8-TCDD | 90.8 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 143 | 145 | |
| Total PeCDD | 838 | | |
| Total HxCDD | 6980 | | |
| Total HpCDD | 54300 | | |
| Total TCDF | 84.8 | 88.2 | P J |
| Total PeCDF | 637 | | P J |
| Total HxCDF | 5960 | | |
| Total HpCDF | 27700 | | J |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 635**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** A6-1 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-001 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.62 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 66.0 | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0730 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.944 | | | J |
| 1,2,3,7,8-PeCDD | 7.46 | | | |
| 1,2,3,4,7,8-HxCDD | 19.4 | | | |
| 1,2,3,6,7,8-HxCDD | 69.2 | | | |
| 1,2,3,7,8,9-HxCDD | 30.2 | | | |
| 1,2,3,4,6,7,8-HpCDD | 2140 | | | |
| OCDD | 26000 | | | E J |
| 2,3,7,8-TCDF | ND | 0.794 | | |
| 1,2,3,7,8-PeCDF | 1.30 | | | J |
| 2,3,4,7,8-PeCDF | 6.12 | | | |
| 1,2,3,4,7,8-HxCDF | 16.9 | | | |
| 1,2,3,6,7,8-HxCDF | 7.23 | | | |
| 2,3,4,6,7,8-HxCDF | 15.5 | | | |
| 1,2,3,7,8,9-HxCDF | 4.30 | | | J |
| 1,2,3,4,6,7,8-HpCDF | 382 | | | J |
| 1,2,3,4,7,8,9-HpCDF | 29.7 | | | |
| OCDF | 1770 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 89.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 92.1 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 86.5 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 93.1 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 88.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 87.3 | 40 - 135 | |
| | 13C-OCDD | 109 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 84.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 89.7 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 96.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 82.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 88.3 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 83.3 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 84.0 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 78.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 73.9 | 40 - 135 | |
| | 13C-OCDF | 82.7 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 84.1 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 14.1 | 17.5 | |
| Total PeCDD | 72.5 | | |
| Total HxCDD | 500 | | |
| Total HpCDD | 4390 | | |
| Total TCDF | 7.42 | 9.74 | P J |
| Total PeCDF | 66.3 | 66.6 | P J |
| Total HxCDF | 548 | | |
| Total HpCDF | 2010 | | J |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 60.4**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A6-2 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-002 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.77 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 65.0 | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0800 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.562 | | | J |
| 1,2,3,7,8-PeCDD | 2.60 | | | J |
| 1,2,3,4,7,8-HxCDD | 6.41 | | | |
| 1,2,3,6,7,8-HxCDD | 21.8 | | | |
| 1,2,3,7,8,9-HxCDD | 10.8 | | | |
| 1,2,3,4,6,7,8-HpCDD | 728 | | | |
| OCDD | 15200 | | | E J |
| 2,3,7,8-TCDF | 0.249 | | | J |
| 1,2,3,7,8-PeCDF | 0.532 | | | J |
| 2,3,4,7,8-PeCDF | 1.82 | | | J |
| 1,2,3,4,7,8-HxCDF | 3.93 | | | J |
| 1,2,3,6,7,8-HxCDF | 1.77 | | | J |
| 2,3,4,6,7,8-HxCDF | 4.10 | | | J |
| 1,2,3,7,8,9-HxCDF | ND | 0.931 | | |
| 1,2,3,4,6,7,8-HpCDF | 123 | | | |
| 1,2,3,4,7,8,9-HpCDF | 9.03 | | | |
| OCDF | 575 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 91.0 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 90.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 91.8 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 93.9 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 91.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 90.4 | 40 - 135 | |
| | 13C-OCDD | 111 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 89.3 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 92.2 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 95.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 92.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 93.4 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 86.1 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 84.2 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 83.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 82.6 | 40 - 135 | |
| | 13C-OCDF | 88.3 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 89.6 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 5.14 | 6.41 | |
| Total PeCDD | 20.1 | 21.4 | |
| Total HxCDD | 156 | | |
| Total HpCDD | 1450 | | |
| Total TCDF | 3.20 | 4.12 | P J |
| Total PeCDF | 17.0 | 18.0 | P J |
| Total HxCDF | 137 | | |
| Total HpCDF | 572 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 22.0**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A6-3 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-003 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 8.70 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 58.3 | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0815 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.460 | | | J |
| 1,2,3,7,8-PeCDD | 2.24 | | | J |
| 1,2,3,4,7,8-HxCDD | 4.76 | | | J |
| 1,2,3,6,7,8-HxCDD | 10.1 | | | |
| 1,2,3,7,8,9-HxCDD | 7.64 | | | |
| 1,2,3,4,6,7,8-HpCDD | 341 | | | |
| OCDD | 12800 | | | E J |
| 2,3,7,8-TCDF | 0.500 | | | J |
| 1,2,3,7,8-PeCDF | 0.412 | | | J |
| 2,3,4,7,8-PeCDF | 4.45 | | | J |
| 1,2,3,4,7,8-HxCDF | 3.34 | | | J |
| 1,2,3,6,7,8-HxCDF | 1.92 | | | J |
| 2,3,4,6,7,8-HxCDF | 3.20 | | | J |
| 1,2,3,7,8,9-HxCDF | 0.822 | | | J |
| 1,2,3,4,6,7,8-HpCDF | 41.7 | | | |
| 1,2,3,4,7,8,9-HpCDF | ND | | 2.49 | UX |
| OCDF | 149 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 89.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 87.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 84.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 88.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 82.8 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 70.9 | 40 - 135 | |
| | 13C-OCDD | 82.1 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 84.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 88.7 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 92.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 86.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 89.2 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 81.1 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 77.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 67.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 63.8 | 40 - 135 | |
| | 13C-OCDF | 66.6 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 88.4 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 4.00 | 5.66 |
| Total PeCDD | 17.9 | 20.7 |
| Total HxCDD | 111 | |
| Total HpCDD | 770 | |
| Total TCDF | 13.0 | 13.5 |
| Total PeCDF | 39.9 | |
| Total HxCDF | 61.9 | |
| Total HpCDF | 154 | 157 |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 15.0**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A6-4 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Soil | Lab Sample: | 32551-004 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 6.98 g | QC Batch No.: | 2956 | Date Extracted: | 19-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 72.2 | Date Analyzed DB-5: | 21-Apr-10 | Dates Analyzed DB-225: | 21-Apr-10 |
| Time Collected: | 0820 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | | 0.460 | UX |
| 1,2,3,7,8-PeCDD | 3.07 | | | J |
| 1,2,3,4,7,8-HxCDD | 7.19 | | | |
| 1,2,3,6,7,8-HxCDD | 20.0 | | | |
| 1,2,3,7,8,9-HxCDD | 12.5 | | | |
| 1,2,3,4,6,7,8-HpCDD | 633 | | | |
| OCDD | 10400 | | | E 5 |
| 2,3,7,8-TCDF | 1.31 | | | |
| 1,2,3,7,8-PeCDF | 1.15 | | | J |
| 2,3,4,7,8-PeCDF | 16.9 | | | |
| 1,2,3,4,7,8-HxCDF | 6.37 | | | |
| 1,2,3,6,7,8-HxCDF | 4.28 | | | J |
| 2,3,4,6,7,8-HxCDF | 9.27 | | | |
| 1,2,3,7,8,9-HxCDF | 2.35 | | | J |
| 1,2,3,4,6,7,8-HpCDF | 103 | | | |
| 1,2,3,4,7,8,9-HpCDF | 8.45 | | | |
| OCDF | 459 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 91.0 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 88.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 94.6 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 95.6 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 93.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 81.9 | 40 - 135 | |
| | 13C-OCDD | 93.1 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 90.2 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 92.2 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 92.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 86.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 89.0 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 86.5 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 85.1 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 78.0 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 77.2 | 40 - 135 | |
| | 13C-OCDF | 78.2 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 91.3 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 7.96 | 9.37 | |
| Total PeCDD | 29.1 | 30.1 | |
| Total HxCDD | 158 | | |
| Total HpCDD | 1270 | | |
| Total TCDF | 37.2 | 39.8 | |
| Total PeCDF | 132 | 133 | P 5 |
| Total HxCDF | 174 | | |
| Total HpCDF | 440 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 25.2**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 07:30

**Sample ID:** A6-5 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-005 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.56 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 67.4 | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0825 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 0.348 | | |
| 1,2,3,7,8-PeCDD | 0.786 | | | J |
| 1,2,3,4,7,8-HxCDD | 1.79 | | | J |
| 1,2,3,6,7,8-HxCDD | 2.66 | | | J |
| 1,2,3,7,8,9-HxCDD | 2.58 | | | J |
| 1,2,3,4,6,7,8-HpCDD | 91.6 | | | |
| OCDD | 2840 | | | |
| 2,3,7,8-TCDF | ND | 0.507 | | |
| 1,2,3,7,8-PeCDF | ND | 0.389 | | |
| 2,3,4,7,8-PeCDF | 1.02 | | | J |
| 1,2,3,4,7,8-HxCDF | ND | 0.502 | | |
| 1,2,3,6,7,8-HxCDF | ND | 0.500 | | |
| 2,3,4,6,7,8-HxCDF | 0.540 | | | J |
| 1,2,3,7,8,9-HxCDF | ND | 0.271 | | |
| 1,2,3,4,6,7,8-HpCDF | 5.65 | | | |
| 1,2,3,4,7,8,9-HpCDF | ND | 1.26 | | |
| OCDF | 20.7 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 90.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 93.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 89.7 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 93.6 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 89.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 80.5 | 40 - 135 | |
| | 13C-OCDD | 79.1 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 89.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 98.2 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 103 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 81.9 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 88.2 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 83.7 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 81.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 76.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 75.2 | 40 - 135 | |
| | 13C-OCDF | 70.3 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 86.3 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 0.729 | 1.56 | |
| Total PeCDD | 7.81 | | |
| Total HxCDD | 33.2 | 33.9 | |
| Total HpCDD | 221 | | |
| Total TCDF | 1.96 | 3.14 | |
| Total PeCDF | 7.19 | | |
| Total HxCDF | 8.05 | 8.83 | |
| Total HpCDF | 22.3 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 3.68**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** **FIELD DUPLICATE #5** **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-006 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.42 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 67.4 | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | NA | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 0.344 | | |
| 1,2,3,7,8-PeCDD | 0.701 | | | J |
| 1,2,3,4,7,8-HxCDD | ND | | 1.20 | UX |
| 1,2,3,6,7,8-HxCDD | ND | | 2.61 | UX |
| 1,2,3,7,8,9-HxCDD | 2.54 | | | J |
| 1,2,3,4,6,7,8-HpCDD | 97.5 | | | |
| OCDD | 3240 | | | |
| 2,3,7,8-TCDF | ND | 0.642 | | |
| 1,2,3,7,8-PeCDF | ND | 0.406 | | |
| 2,3,4,7,8-PeCDF | 0.761 | | | J |
| 1,2,3,4,7,8-HxCDF | ND | 0.605 | | |
| 1,2,3,6,7,8-HxCDF | ND | 0.621 | | |
| 2,3,4,6,7,8-HxCDF | 0.621 | | | J |
| 1,2,3,7,8,9-HxCDF | ND | 0.401 | | |
| 1,2,3,4,6,7,8-HpCDF | 7.48 | | | |
| 1,2,3,4,7,8,9-HpCDF | ND | 0.713 | | |
| OCDF | 25.9 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 88.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 100 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 88.9 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 92.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 91.8 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 98.7 | 40 - 135 | |
| | 13C-OCDD | 110 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 85.8 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 93.3 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 104 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 83.1 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 86.4 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 84.2 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 86.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 86.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 92.7 | 40 - 135 | |
| | 13C-OCDF | 98.2 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 85.8 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | ND | 0.506 | UX |
| Total PeCDD | 2.12 | 3.91 | J |
| Total HxCDD | 26.7 | 30.5 | |
| Total HpCDD | 226 | | |
| Total TCDF | 0.775 | 1.09 | |
| Total PeCDF | 3.13 | 4.98 | |
| Total HxCDF | 7.98 | 8.61 | |
| Total HpCDF | 25.9 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min):** **3.27**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A6-6 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-012 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 8.33 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 60.3 | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0915 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.468 | | | J |
| 1,2,3,7,8-PeCDD | 1.87 | | | J |
| 1,2,3,4,7,8-HxCDD | 3.72 | | | J |
| 1,2,3,6,7,8-HxCDD | 10.7 | | | |
| 1,2,3,7,8,9-HxCDD | 7.00 | | | |
| 1,2,3,4,6,7,8-HpCDD | 358 | | | |
| OCDD | 11500 | | | E J |
| 2,3,7,8-TCDF | ND | | 0.299 | UX |
| 1,2,3,7,8-PeCDF | 0.311 | | | J |
| 2,3,4,7,8-PeCDF | 2.34 | | | J |
| 1,2,3,4,7,8-HxCDF | 1.87 | | | J |
| 1,2,3,6,7,8-HxCDF | ND | | 1.14 | UX |
| 2,3,4,6,7,8-HxCDF | 2.46 | | | J |
| 1,2,3,7,8,9-HxCDF | ND | 0.666 | | |
| 1,2,3,4,6,7,8-HpCDF | 42.6 | | | |
| 1,2,3,4,7,8,9-HpCDF | 2.60 | | | J |
| OCDF | 175 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 94.1 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 94.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 93.2 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 94.2 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 92.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 77.9 | 40 - 135 | |
| | 13C-OCDD | 89.0 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 92.2 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 95.9 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 98.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 89.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 92.2 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 87.6 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 83.2 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 75.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 73.6 | 40 - 135 | |
| | 13C-OCDF | 70.5 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 88.9 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 2.96 | 4.67 |
| Total PeCDD | 14.2 | 16.6 |
| Total HxCDD | 104 | |
| Total HpCDD | 809 | |
| Total TCDF | 6.31 | 6.93 |
| Total PeCDF | 21.9 | 22.8 |
| Total HxCDF | 52.8 | 53.9 |
| Total HpCDF | 176 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 13.2**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors (WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A6-7 (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-013 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.14 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 70.2 | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0920 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC [b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.321 | | | J |
| 1,2,3,7,8-PeCDD | 0.761 | | | J |
| 1,2,3,4,7,8-HxCDD | 1.74 | | | J |
| 1,2,3,6,7,8-HxCDD | 4.18 | | | J |
| 1,2,3,7,8,9-HxCDD | 2.95 | | | J |
| 1,2,3,4,6,7,8-HpCDD | 136 | | | |
| OCDD | 3600 | | | |
| 2,3,7,8-TCDF | ND | 0.339 | | |
| 1,2,3,7,8-PeCDF | ND | 0.683 | | |
| 2,3,4,7,8-PeCDF | 2.47 | | | J |
| 1,2,3,4,7,8-HxCDF | 1.05 | | | J |
| 1,2,3,6,7,8-HxCDF | ND | | 0.701 | UX |
| 2,3,4,6,7,8-HxCDF | 1.34 | | | J |
| 1,2,3,7,8,9-HxCDF | ND | 0.562 | | |
| 1,2,3,4,6,7,8-HpCDF | 19.0 | | | |
| 1,2,3,4,7,8,9-HpCDF | 1.40 | | | J |
| OCDF | 79.1 | | | |

| | Labeled Standard | %R | LCL-UCL [d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 85.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 86.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 87.3 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 90.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 86.2 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 74.2 | 40 - 135 | |
| | 13C-OCDD | 73.4 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 83.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 87.9 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 91.9 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 79.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 82.7 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 80.7 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 78.6 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 70.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 68.9 | 40 - 135 | |
| | 13C-OCDF | 65.0 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 85.3 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 3.65 | 4.68 | |
| Total PeCDD | 7.20 | 9.26 | |
| Total HxCDD | 40.7 | 41.6 | |
| Total HpCDD | 297 | | |
| Total TCDF | 7.91 | 8.93 | P J |
| Total PeCDF | 17.1 | | P J |
| Total HxCDF | 30.7 | 31.4 | |
| Total HpCDF | 80.0 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 5.62**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** A6-8 (0-6") **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Sediment | Lab Sample: | 32551-014 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 6.69 g | QC Batch No.: | 2954 | Date Extracted: | 18-Apr-10 |
| Date Collected: | 31-Mar-10 | %Solids: | 76.7 | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 0925 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | | 0.196 | UX |
| 1,2,3,7,8-PeCDD | ND | | 0.750 | UX |
| 1,2,3,4,7,8-HxCDD | 1.46 | | | J |
| 1,2,3,6,7,8-HxCDD | 2.16 | | | J |
| 1,2,3,7,8,9-HxCDD | 2.62 | | | J |
| 1,2,3,4,6,7,8-HpCDD | 84.7 | | | |
| OCDD | 3360 | | | |
| 2,3,7,8-TCDF | ND | 0.250 | | |
| 1,2,3,7,8-PeCDF | ND | 0.421 | | |
| 2,3,4,7,8-PeCDF | ND | 0.373 | | |
| 1,2,3,4,7,8-HxCDF | ND | 0.207 | | |
| 1,2,3,6,7,8-HxCDF | ND | 0.207 | | |
| 2,3,4,6,7,8-HxCDF | ND | 0.245 | | |
| 1,2,3,7,8,9-HxCDF | ND | 0.329 | | |
| 1,2,3,4,6,7,8-HpCDF | 1.30 | | | J |
| 1,2,3,4,7,8,9-HpCDF | ND | 0.229 | | |
| OCDF | 3.96 | | | J |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 88.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 81.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 86.8 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 89.8 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 84.2 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 71.5 | 40 - 135 | |
| | 13C-OCDD | 73.8 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 85.0 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 81.8 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 84.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 84.9 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 87.6 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 81.9 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 77.9 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 68.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 67.9 | 40 - 135 | |
| | 13C-OCDF | 64.3 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 83.3 | 40 - 135 | |

| Totals | | | |
|---|---|---|---|
| Total TCDD | 1.32 | 1.51 | |
| Total PeCDD | 4.29 | 6.88 | |
| Total HxCDD | 37.6 | | |
| Total HpCDD | 216 | | |
| Total TCDF | 0.374 | 0.566 | |
| Total PeCDF | 0.299 | 0.644 | |
| Total HxCDF | ND | 1.27 | |
| Total HpCDF | 1.30 | 3.85 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 2.50**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 23-Apr-2010 08:24

**Sample ID:** NPL (0-6")

**EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Soil | Lab Sample: | 32549-012 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 7.83 g | QC Batch No.: | 2967 | Date Extracted: | 21-Apr-10 |
| Date Collected: | 29-Mar-10 | %Solids: | 64.4 | Date Analyzed DB-5: | 24-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 1600 | | | | | | |

| Analyte | Conc. (pg/g) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | 0.630 | | | J |
| 1,2,3,7,8-PeCDD | 2.44 | | | J |
| 1,2,3,4,7,8-HxCDD | 4.75 | | | J |
| 1,2,3,6,7,8-HxCDD | 11.4 | | | |
| 1,2,3,7,8,9-HxCDD | 7.23 | | | |
| 1,2,3,4,6,7,8-HpCDD | 413 | | | |
| OCDD | 12600 | | | E J |
| 2,3,7,8-TCDF | 0.928 | | | J |
| 1,2,3,7,8-PeCDF | 0.808 | | | J |
| 2,3,4,7,8-PeCDF | 3.28 | | | J |
| 1,2,3,4,7,8-HxCDF | 3.55 | | | J |
| 1,2,3,6,7,8-HxCDF | 1.95 | | | J |
| 2,3,4,6,7,8-HxCDF | 3.48 | | | J |
| 1,2,3,7,8,9-HxCDF | ND | 1.01 | | |
| 1,2,3,4,6,7,8-HpCDF | 51.8 | | | |
| 1,2,3,4,7,8,9-HpCDF | 4.00 | | | J |
| OCDF | 215 | | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 92.8 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 91.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 96.6 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 101 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 98.3 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 91.6 | 40 - 135 | |
| | 13C-OCDD | 112 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 88.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 86.1 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 90.1 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 86.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 89.2 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 90.6 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 89.3 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 82.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 84.2 | 40 - 135 | |
| | 13C-OCDF | 90.2 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 89.2 | 40 - 135 | |

| Totals | | |
|---|---|---|
| Total TCDD | 31.9 | 32.4 |
| Total PeCDD | 38.1 | 45.2 |
| Total HxCDD | 120 | |
| Total HpCDD | 854 | |
| Total TCDF | 20.1 | 21.5 |
| Total PeCDF | 22.9 | |
| Total HxCDF | 61.4 | |
| Total HpCDF | 212 | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 15.9**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Martha M. Maier 28-Apr-2010 14:28

**Sample ID:** RB032910 **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | ARCADIS | Matrix: | Aqueous | Lab Sample: | 32549-002 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 1.00 L | QC Batch No.: | 2946 | Date Extracted: | 14-Apr-10 |
| Date Collected: | 29-Mar-10 | | | Date Analyzed DB-5: | 20-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 1730 | | | | | | |

| Analyte | Conc. (pg/L) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 0.231 | | |
| 1,2,3,7,8-PeCDD | ND | 0.299 | | |
| 1,2,3,4,7,8-HxCDD | ND | 0.321 | | |
| 1,2,3,6,7,8-HxCDD | ND | 0.332 | | |
| 1,2,3,7,8,9-HxCDD | ND | 0.324 | | |
| 1,2,3,4,6,7,8-HpCDD | 0.531 | | | J,B |
| OCDD | 2.82 | | | J,B |
| 2,3,7,8-TCDF | ND | 0.218 | | |
| 1,2,3,7,8-PeCDF | ND | 0.248 | | |
| 2,3,4,7,8-PeCDF | ND | 0.226 | | |
| 1,2,3,4,7,8-HxCDF | ND | 0.163 | | |
| 1,2,3,6,7,8-HxCDF | ND | 0.156 | | |
| 2,3,4,6,7,8-HxCDF | ND | 0.170 | | |
| 1,2,3,7,8,9-HxCDF | ND | 0.238 | | |
| 1,2,3,4,6,7,8-HpCDF | ND | 0.215 | | |
| 1,2,3,4,7,8,9-HpCDF | ND | 0.246 | | |
| OCDF | ND | 0.622 | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 83.4 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 61.3 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 85.3 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 87.1 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 82.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 72.9 | 40 - 135 | |
| | 13C-OCDD | 51.2 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 87.9 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 70.7 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 68.9 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 64.5 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 76.6 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 78.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 75.6 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 72.7 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 66.4 | 40 - 135 | |
| | 13C-OCDF | 50.1 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 87.9 | 40 - 135 | |

| Totals | | | | |
|---|---|---|---|---|
| Total TCDD | ND | 0.231 | | |
| Total PeCDD | ND | 0.299 | | |
| Total HxCDD | ND | 0.326 | | |
| Total HpCDD | 1.55 | | | B |
| Total TCDF | ND | 0.218 | | |
| Total PeCDF | ND | 0.237 | | |
| Total HxCDF | ND | 0.182 | | |
| Total HpCDF | ND | 0.230 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 0.00616**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

Analyst: TEH

Approved By: Martha M. Maier 22-Apr-2010 12:38

**Sample ID:** **RB033010** **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Aqueous | Lab Sample: | 32550-001 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 0.992 L | QC Batch No.: | 2946 | Date Extracted: | 14-Apr-10 |
| Date Collected: | 30-Mar-10 | | | Date Analyzed DB-5: | 21-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 1800 | | | | | | |

| Analyte | Conc. (pg/L) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | 0.233 | | |
| 1,2,3,7,8-PeCDD | ND | 0.211 | | |
| 1,2,3,4,7,8-HxCDD | ND | 0.284 | | |
| 1,2,3,6,7,8-HxCDD | ND | 0.282 | | |
| 1,2,3,7,8,9-HxCDD | ND | 0.294 | | |
| 1,2,3,4,6,7,8-HpCDD | ND | 0.335 | | |
| OCDD | 4.49 | | | J,B |
| 2,3,7,8-TCDF | ND | 0.183 | | |
| 1,2,3,7,8-PeCDF | ND | 0.225 | | |
| 2,3,4,7,8-PeCDF | ND | 0.217 | | |
| 1,2,3,4,7,8-HxCDF | ND | 0.158 | | |
| 1,2,3,6,7,8-HxCDF | ND | 0.150 | | |
| 2,3,4,6,7,8-HxCDF | ND | 0.166 | | |
| 1,2,3,7,8,9-HxCDF | ND | 0.222 | | |
| 1,2,3,4,6,7,8-HpCDF | ND | 0.232 | | |
| 1,2,3,4,7,8,9-HpCDF | ND | 0.238 | | |
| OCDF | ND | 0.455 | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 86.6 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 66.2 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 91.3 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 94.4 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 88.1 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 82.3 | 40 - 135 | |
| | 13C-OCDD | 66.0 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 93.1 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 78.2 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 76.1 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 68.9 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 83.2 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 84.7 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 82.4 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 79.1 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 77.9 | 40 - 135 | |
| | 13C-OCDF | 65.6 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 86.2 | 40 - 135 | |

| Totals | | | | |
|---|---|---|---|---|
| Total TCDD | ND | 0.233 | | |
| Total PeCDD | ND | 0.211 | | |
| Total HxCDD | ND | 0.287 | | |
| Total HpCDD | ND | | 0.801 | |
| Total TCDF | ND | 0.183 | | |
| Total PeCDF | ND | 0.221 | | |
| Total HxCDF | ND | 0.174 | | |
| Total HpCDF | ND | 0.235 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min): 0.00135**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

Analyst: TEH

Approved By: Martha M. Maier 21-Apr-2010 14:07

**Sample ID:** **RB033110** **EPA Method 8290**

| Client Data | | Sample Data | | Laboratory Data | | | |
|---|---|---|---|---|---|---|---|
| Name: | Arcadis | Matrix: | Aqueous | Lab Sample: | 32550-002 | Date Received: | 2-Apr-10 |
| Project: | Beazer-Carbondale, IL | Sample Size: | 1.01 L | QC Batch No.: | 2946 | Date Extracted: | 14-Apr-10 |
| Date Collected: | 31-Mar-10 | | | Date Analyzed DB-5: | 21-Apr-10 | Date Analyzed DB-225: | NA |
| Time Collected: | 1200 | | | | | | |

| Analyte | Conc. (pg/L) | DL [a] | EMPC[b] | Qualifiers |
|---|---|---|---|---|
| 2,3,7,8-TCDD | ND | | 0.201 | |
| 1,2,3,7,8-PeCDD | ND | 0.192 | | |
| 1,2,3,4,7,8-HxCDD | ND | 0.310 | | |
| 1,2,3,6,7,8-HxCDD | ND | 0.328 | | |
| 1,2,3,7,8,9-HxCDD | ND | 0.312 | | |
| 1,2,3,4,6,7,8-HpCDD | 0.529 | | | J,B |
| OCDD | 2.51 | | | J,B |
| 2,3,7,8-TCDF | ND | 0.201 | | |
| 1,2,3,7,8-PeCDF | ND | 0.247 | | |
| 2,3,4,7,8-PeCDF | ND | 0.236 | | |
| 1,2,3,4,7,8-HxCDF | ND | 0.159 | | |
| 1,2,3,6,7,8-HxCDF | ND | 0.155 | | |
| 2,3,4,6,7,8-HxCDF | ND | 0.171 | | |
| 1,2,3,7,8,9-HxCDF | ND | 0.220 | | |
| 1,2,3,4,6,7,8-HpCDF | ND | 0.252 | | |
| 1,2,3,4,7,8,9-HpCDF | ND | 0.258 | | |
| OCDF | ND | 0.497 | | |

| | Labeled Standard | %R | LCL-UCL[d] | Qualifiers |
|---|---|---|---|---|
| IS | 13C-2,3,7,8-TCDD | 83.1 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDD | 62.8 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDD | 86.0 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDD | 87.9 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDD | 82.8 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDD | 81.7 | 40 - 135 | |
| | 13C-OCDD | 66.4 | 40 - 135 | |
| | 13C-2,3,7,8-TCDF | 88.5 | 40 - 135 | |
| | 13C-1,2,3,7,8-PeCDF | 73.7 | 40 - 135 | |
| | 13C-2,3,4,7,8-PeCDF | 71.5 | 40 - 135 | |
| | 13C-1,2,3,4,7,8-HxCDF | 64.4 | 40 - 135 | |
| | 13C-1,2,3,6,7,8-HxCDF | 78.4 | 40 - 135 | |
| | 13C-2,3,4,6,7,8-HxCDF | 79.1 | 40 - 135 | |
| | 13C-1,2,3,7,8,9-HxCDF | 77.5 | 40 - 135 | |
| | 13C-1,2,3,4,6,7,8-HpCDF | 76.4 | 40 - 135 | |
| | 13C-1,2,3,4,7,8,9-HpCDF | 73.8 | 40 - 135 | |
| | 13C-OCDF | 63.5 | 40 - 135 | |
| CRS | 37Cl-2,3,7,8-TCDD | 87.7 | 40 - 135 | |

| Totals | | | | |
|---|---|---|---|---|
| Total TCDD | 0.637 | | 0.839 | |
| Total PeCDD | ND | 0.192 | | |
| Total HxCDD | ND | 0.317 | | |
| Total HpCDD | 1.46 | | | B |
| Total TCDF | ND | 0.201 | | |
| Total PeCDF | ND | 0.242 | | |
| Total HxCDF | ND | 0.176 | | |
| Total HpCDF | ND | 0.255 | | |

**Toxic Equivalent Quotient (TEQ) Data** [e]

**TEQ (Min):** **0.00604**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

Analyst: TEH

Approved By: Martha M. Maier 21-Apr-2010 14:07

ARCADIS U.S., Inc.

Client Sample ID: A1-35 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-021 | Work Order #...: | LXGQR1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/30/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0095277 |
| Prep Date.....: | 04/05/10 | Analysis Date..: | 04/06/10 | | |
| Prep Batch #...: | 0095430 | Analysis Time..: | 21:22 | | |
| Dilution Factor: | 1 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 31 | Analyst ID.....: | 003200 | Instrument ID..: | 733 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 48 | ug/kg | 4.3 |
| Naphthalene | 7.7 J | 9.7 | ug/kg | 0.83 |
| Acenaphthylene | 19 | 9.7 | ug/kg | 1.1 |
| Acenaphthene | 3.0 J | 9.7 | ug/kg | 0.92 |
| Fluorene | ND | 9.7 | ug/kg | 1.3 |
| Phenanthrene | 29 | 9.7 | ug/kg | 1.5 |
| Anthracene | 20 | 9.7 | ug/kg | 0.94 |
| Fluoranthene | 47 | 9.7 | ug/kg | 1.0 |
| Pyrene | 40 | 9.7 | ug/kg | 0.97 |
| Benzo(a)anthracene | 32 | 9.7 | ug/kg | 1.2 |
| Chrysene | 56 | 9.7 | ug/kg | 1.1 |
| Benzo(b)fluoranthene | 73 | 9.7 | ug/kg | 1.5 |
| Benzo(k)fluoranthene | 37 | 9.7 | ug/kg | 1.9 |
| Benzo(a)pyrene | 40 | 9.7 | ug/kg | 0.96 |
| Indeno(1,2,3-cd)pyrene | 32 | 9.7 | ug/kg | 0.99 |
| Dibenzo(a,h)anthracene | 9.4 J | 9.7 | ug/kg | 1.1 |
| Benzo(ghi)perylene | 36 | 9.7 | ug/kg | 0.96 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 65 | (27 - 110) |
| Terphenyl-d14 | 68 | (21 - 130) |
| 2-Fluorobiphenyl | 72 | (28 - 108) |
| 2-Fluorophenol | 60 | (28 - 107) |
| Phenol-d5 | 62 | (30 - 112) |
| 2,4,6-Tribromophenol | 81 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

**ARCADIS U.S., Inc.**

**Client Sample ID: A1-36 (0-6)**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-018 | **Work Order #...:** | LXGQM1AC | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/30/10 08:45 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095277 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095430 | **Analysis Time..:** | 20:16 | | |
| **Dilution Factor:** | 0.99 | **Initial Wgt/Vol:** | 15.2 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 31 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 733 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| **Pentachlorophenol** | **22 J** | **47** | **ug/kg** | **4.3** |
| **Naphthalene** | **7.2 J** | **9.6** | **ug/kg** | **0.82** |
| **Acenaphthylene** | **23** | **9.6** | **ug/kg** | **1.1** |
| **Acenaphthene** | **4.2 J** | **9.6** | **ug/kg** | **0.92** |
| **Fluorene** | **3.0 J** | **9.6** | **ug/kg** | **1.3** |
| **Phenanthrene** | **27** | **9.6** | **ug/kg** | **1.5** |
| **Anthracene** | **34** | **9.6** | **ug/kg** | **0.93** |
| **Fluoranthene** | **56** | **9.6** | **ug/kg** | **1.0** |
| **Pyrene** | **53** | **9.6** | **ug/kg** | **0.96** |
| **Benzo(a)anthracene** | **46** | **9.6** | **ug/kg** | **1.2** |
| **Chrysene** | **74** | **9.6** | **ug/kg** | **1.1** |
| **Benzo(b)fluoranthene** | **130** | **9.6** | **ug/kg** | **1.5** |
| **Benzo(k)fluoranthene** | **57** | **9.6** | **ug/kg** | **1.9** |
| **Benzo(a)pyrene** | **45** | **9.6** | **ug/kg** | **0.95** |
| **Indeno(1,2,3-cd)pyrene** | **53** | **9.6** | **ug/kg** | **0.98** |
| **Dibenzo(a,h)anthracene** | **18** | **9.6** | **ug/kg** | **1.1** |
| **Benzo(ghi)perylene** | **48** | **9.6** | **ug/kg** | **0.95** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 66 | (27 - 110) |
| Terphenyl-d14 | 65 | (21 - 130) |
| 2-Fluorobiphenyl | 69 | (28 - 108) |
| 2-Fluorophenol | 62 | (28 - 107) |
| Phenol-d5 | 61 | (30 - 112) |
| 2,4,6-Tribromophenol | 76 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A1-37 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-017 | **Work Order #...:** | LXGQK1AC | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/30/10 08:40 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095277 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095430 | **Analysis Time..:** | 19:54 | | |
| **Dilution Factor:** | 20 | **Initial Wgt/Vol:** | 15 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 38 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 733 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| **Pentachlorophenol** | **8000** DJ | **1100** | **ug/kg** | **96** |
| **Naphthalene** | **840** | **220** | **ug/kg** | **19** |
| **Acenaphthylene** | **6400** | **220** | **ug/kg** | **25** |
| **Acenaphthene** | **280** | **220** | **ug/kg** | **21** |
| **Fluorene** | **590** | **220** | **ug/kg** | **28** |
| **Phenanthrene** | **12000** | **220** | **ug/kg** | **34** |
| **Anthracene** | **9600** | **220** | **ug/kg** | **21** |
| **Fluoranthene** | ~~60000 E~~ | **220** | **ug/kg** | **23** |
| **Pyrene** | ~~49000 E~~ | **220** | **ug/kg** | **22** |
| **Benzo(a)anthracene** | **31000** | **220** | **ug/kg** | **27** |
| **Chrysene** | **37000** | **220** | **ug/kg** | **26** |
| **Benzo(b)fluoranthene** | ~~51000 E~~ | **220** | **ug/kg** | **34** |
| Benzo(k)fluoranthene | ~~ND~~ | 220 | ug/kg | 44 |
| **Benzo(a)pyrene** | **17000** | **220** | **ug/kg** | **22** |
| **Indeno(1,2,3-cd)pyrene** | **14000** | **220** | **ug/kg** | **22** |
| **Dibenzo(a,h)anthracene** | **5200** | **220** | **ug/kg** | **24** |
| **Benzo(ghi)perylene** | **14000** | **220** | **ug/kg** | **21** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

**NOTE(S):**

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

E Estimated result. Result concentration exceeds the calibration range.

ARCADIS U.S., Inc.

Client Sample ID: A1-37 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-017 | Work Order #...: | LXGQK2AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/30/10 08:40 | Date Received..: | 04/02/10 10:15 | MS Run #.....: | 0095277 |
| Prep Date.....: | 04/05/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0095430 | Analysis Time..: | 19:49 | | |
| Dilution Factor: | 100 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 38 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ~~8200~~ | 5300 | ug/kg | 480 |
| Naphthalene | ~~830 J~~ | 1100 | ug/kg | 93 |
| Acenaphthylene | ~~5400~~ | 1100 | ug/kg | 120 |
| Acenaphthene | ~~230 J~~ | 1100 | ug/kg | 100 |
| Fluorene | ~~ND~~ | 1100 | ug/kg | 140 |
| Phenanthrene | ~~12000~~ | 1100 | ug/kg | 170 |
| Anthracene | ~~6500~~ | 1100 | ug/kg | 110 |
| Fluoranthene | 85000 DJ | 1100 | ug/kg | 120 |
| Pyrene | 58000 DJ | 1100 | ug/kg | 110 |
| Benzo(a)anthracene | ~~30000~~ | 1100 | ug/kg | 140 |
| Chrysene | ~~42000~~ | 1100 | ug/kg | 130 |
| Benzo(b)fluoranthene | 52000 DJ | 1100 | ug/kg | 170 |
| Benzo(k)fluoranthene | ~~ND~~ 46000 DJ | 1100 | ug/kg | 220 |
| Benzo(a)pyrene | ~~17000~~ | 1100 | ug/kg | 110 |
| Indeno(1,2,3-cd)pyrene | ~~14000~~ | 1100 | ug/kg | 110 |
| Dibenzo(a,h)anthracene | ~~4300~~ | 1100 | ug/kg | 120 |
| Benzo(ghi)perylene | ~~12000~~ | 1100 | ug/kg | 110 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

**ARCADIS U.S., Inc.**

**Client Sample ID: A1-38 (0-6)**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-019 | **Work Order #...:** | LXGQP1AC | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/30/10 08:50 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095277 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095430 | **Analysis Time..:** | 20:38 | | |
| **Dilution Factor:** | 2 | **Initial Wgt/Vol:** | 15 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 35 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 733 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| **Pentachlorophenol** | **33 J** | **100** | **ug/kg** | **9.2** |
| **Naphthalene** | **44** | **21** | **ug/kg** | **1.8** |
| **Acenaphthylene** | **330** | **21** | **ug/kg** | **2.4** |
| **Acenaphthene** | **19 J** | **21** | **ug/kg** | **2.0** |
| **Fluorene** | **31** | **21** | **ug/kg** | **2.7** |
| **Phenanthrene** | **220** | **21** | **ug/kg** | **3.3** |
| **Anthracene** | **420** | **21** | **ug/kg** | **2.0** |
| **Fluoranthene** | **1800** | **21** | **ug/kg** | **2.2** |
| **Pyrene** | **1800** | **21** | **ug/kg** | **2.1** |
| **Benzo(a)anthracene** | **1300** | **21** | **ug/kg** | **2.6** |
| **Chrysene** | **1900** | **21** | **ug/kg** | **2.4** |
| **Benzo(b)fluoranthene** | **2900** JY | **21** | **ug/kg** | **3.2** |
| Benzo(k)fluoranthene | ~~ND~~ 2700 JY | 21 | ug/kg | 4.2 |
| **Benzo(a)pyrene** | **1100** | **21** | **ug/kg** | **2.1** |
| **Indeno(1,2,3-cd)pyrene** | **800** | **21** | **ug/kg** | **2.1** |
| **Dibenzo(a,h)anthracene** | **240** | **21** | **ug/kg** | **2.3** |
| **Benzo(ghi)perylene** | **830** | **21** | **ug/kg** | **2.0** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 62 | (27 - 110) |
| Terphenyl-d14 | 77 | (21 - 130) |
| 2-Fluorobiphenyl | 77 | (28 - 108) |
| 2-Fluorophenol | 62 | (28 - 107) |
| Phenol-d5 | 64 | (30 - 112) |
| 2,4,6-Tribromophenol | 87 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

**ARCADIS U.S., Inc.**

**Client Sample ID: A1-39 (0-6)**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-020 | **Work Order #...:** | LXGQQ1AC | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/30/10 08:55 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095277 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095430 | **Analysis Time..:** | 21:00 | | |
| **Dilution Factor:** | 4 | **Initial Wgt/Vol:** | 15 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 33 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 733 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| **Pentachlorophenol** | **260** | **200** | **ug/kg** | **18** |
| **Naphthalene** | **190** | **40** | **ug/kg** | **3.4** |
| **Acenaphthylene** | **130** | **40** | **ug/kg** | **4.5** |
| **Acenaphthene** | **300** | **40** | **ug/kg** | **3.8** |
| Fluorene | ND | 40 | ug/kg | 5.2 |
| **Phenanthrene** | **3700** | **40** | **ug/kg** | **6.3** |
| **Anthracene** | **200** | **40** | **ug/kg** | **3.9** |
| **Fluoranthene** | **1500** | **40** | **ug/kg** | **4.2** |
| **Pyrene** | **780** | **40** | **ug/kg** | **4.0** |
| **Benzo(a)anthracene** | **1000** | **40** | **ug/kg** | **5.0** |
| **Chrysene** | **1500** | **40** | **ug/kg** | **4.7** |
| **Benzo(b)fluoranthene** | **510** JY | **40** | **ug/kg** | **6.2** |
| Benzo(k)fluoranthene | ~~ND~~ 460 JY | 40 | ug/kg | 8.0 |
| **Benzo(a)pyrene** | **290** | **40** | **ug/kg** | **4.0** |
| **Indeno(1,2,3-cd)pyrene** | **77** | **40** | **ug/kg** | **4.1** |
| **Dibenzo(a,h)anthracene** | **120** | **40** | **ug/kg** | **4.4** |
| **Benzo(ghi)perylene** | **110** | **40** | **ug/kg** | **3.9** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 89 | (27 - 110) |
| Terphenyl-d14 | 70 | (21 - 130) |
| 2-Fluorobiphenyl | 84 | (28 - 108) |
| 2-Fluorophenol | 71 | (28 - 107) |
| Phenol-d5 | 69 | (30 - 112) |
| 2,4,6-Tribromophenol | 84 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A1-40 (0-6)

GC/MS Semivolatiles

Lot-Sample #...: C0D020489-022
Date Sampled...: 03/30/10
Prep Date.....: 04/06/10
Prep Batch #...: 0096045
Dilution Factor: 2
% Moisture.....: 41

Work Order #...: LXGQT1AC
Date Received..: 04/02/10
Analysis Date..: 04/06/10
Analysis Time..: 16:08
Initial Wgt/Vol: 15 g
Analyst ID.....: 430261
Method.....: SW846 8270C

Matrix.....: SOLID
MS Run #.....: 0096021

Final Wgt/Vol..: 0.5 mL
Instrument ID..: 732

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 23 J | 110 | ug/kg | 10 |
| Naphthalene | 34 | 23 | ug/kg | 2.0 |
| Acenaphthylene | 150 | 23 | ug/kg | 2.6 |
| Acenaphthene | 9.8 J | 23 | ug/kg | 2.2 |
| Fluorene | 18 J | 23 | ug/kg | 3.0 |
| Phenanthrene | 94 | 23 | ug/kg | 3.6 |
| Anthracene | 150 | 23 | ug/kg | 2.2 |
| Fluoranthene | 750 | 23 | ug/kg | 2.4 |
| Pyrene | 600 | 23 | ug/kg | 2.3 |
| Benzo(a)anthracene | 400 | 23 | ug/kg | 2.8 |
| Chrysene | 560 | 23 | ug/kg | 2.7 |
| Benzo(b)fluoranthene | 560 | 23 | ug/kg | 3.6 |
| Benzo(k)fluoranthene | 560 | 23 | ug/kg | 4.6 |
| Benzo(a)pyrene | 300 | 23 | ug/kg | 2.3 |
| Indeno(1,2,3-cd)pyrene | 200 | 23 | ug/kg | 2.3 |
| Dibenzo(a,h)anthracene | 70 | 23 | ug/kg | 2.5 |
| Benzo(ghi)perylene | 200 | 23 | ug/kg | 2.3 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 35 | (27 - 110) |
| Terphenyl-d14 | 33 | (21 - 130) |
| 2-Fluorobiphenyl | 33 | (28 - 108) |
| 2-Fluorophenol | 37 | (28 - 107) |
| Phenol-d5 | 32 | (30 - 112) |
| 2,4,6-Tribromophenol | 41 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A1-41 (0-6)

GC/MS Semivolatiles

Lot-Sample #...: C0D020489-023
Date Sampled...: 03/30/10
Prep Date.....: 04/06/10
Prep Batch #...: 0096045
Dilution Factor: 19.61
% Moisture.....: 18

Work Order #...: LXGQV1AC
Date Received..: 04/02/10
Analysis Date..: 04/06/10
Analysis Time..: 16:31
Initial Wgt/Vol: 15.3 g
Analyst ID.....: 430261
Method.....: SW846 8270C

Matrix.....: SOLID
MS Run #.....: 0096021

Final Wgt/Vol..: 0.5 mL
Instrument ID..: 732

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 790 | ug/kg | 71 |
| Naphthalene | 120 J | 160 | ug/kg | 14 |
| Acenaphthylene | 56 J | 160 | ug/kg | 18 |
| Acenaphthene | 900 | 160 | ug/kg | 15 |
| Fluorene | 520 | 160 | ug/kg | 21 |
| Phenanthrene | 12000 | 160 | ug/kg | 25 |
| Anthracene | 1800 | 160 | ug/kg | 16 |
| Fluoranthene | 25000 | 160 | ug/kg | 17 |
| Pyrene | 13000 | 160 | ug/kg | 16 |
| Benzo(a)anthracene | 6400 | 160 | ug/kg | 20 |
| Chrysene | 7200 | 160 | ug/kg | 19 |
| Benzo(b)fluoranthene | 7500 | 160 | ug/kg | 25 |
| Benzo(k)fluoranthene | 4900 | 160 | ug/kg | 32 |
| Benzo(a)pyrene | 6400 | 160 | ug/kg | 16 |
| Indeno(1,2,3-cd)pyrene | 4400 | 160 | ug/kg | 16 |
| Dibenzo(a,h)anthracene | 1100 | 160 | ug/kg | 18 |
| Benzo(ghi)perylene | 4800 | 160 | ug/kg | 16 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A1-42 (0-6)

GC/MS Semivolatiles

| | | |
|---|---|---|
| Lot-Sample #...: C0D020489-024 | Work Order #...: LXGQ01AC | Matrix.....: SOLID |
| Date Sampled...: 03/30/10 | Date Received..: 04/02/10 | MS Run #.....: 0096021 |
| Prep Date.....: 04/06/10 | Analysis Date..: 04/06/10 | |
| Prep Batch #...: 0096045 | Analysis Time..: 16:54 | |
| Dilution Factor: 1.99 | Initial Wgt/Vol: 15.1 g | Final Wgt/Vol..: 0.5 mL |
| % Moisture.....: 29 | Analyst ID.....: 430261 | Instrument ID..: 732 |
| | Method.....: SW846 8270C | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 93 | ug/kg | 8.4 |
| Naphthalene | 2.5 J | 19 | ug/kg | 1.6 |
| Acenaphthylene | 3.9 J | 19 | ug/kg | 2.2 |
| Acenaphthene | ND | 19 | ug/kg | 1.8 |
| Fluorene | 3.0 J | 19 | ug/kg | 2.5 |
| Phenanthrene | 15 J | 19 | ug/kg | 3.0 |
| Anthracene | 4.5 J | 19 | ug/kg | 1.8 |
| Fluoranthene | 19 | 19 | ug/kg | 2.0 |
| Pyrene | 13 J | 19 | ug/kg | 1.9 |
| Benzo(a)anthracene | 11 J | 19 | ug/kg | 2.4 |
| Chrysene | 12 J | 19 | ug/kg | 2.2 |
| Benzo(b)fluoranthene | 19 | 19 | ug/kg | 3.0 |
| Benzo(k)fluoranthene | 7.9 J | 19 | ug/kg | 3.8 |
| Benzo(a)pyrene | 9.6 J | 19 | ug/kg | 1.9 |
| Indeno(1,2,3-cd)pyrene | 8.9 J | 19 | ug/kg | 1.9 |
| Dibenzo(a,h)anthracene | ND | 19 | ug/kg | 2.1 |
| Benzo(ghi)perylene | 7.9 J | 19 | ug/kg | 1.9 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 36 | (27 - 110) |
| Terphenyl-d14 | 35 | (21 - 130) |
| 2-Fluorobiphenyl | 34 | (28 - 108) |
| 2-Fluorophenol | 37 | (28 - 107) |
| Phenol-d5 | 31 | (30 - 112) |
| 2,4,6-Tribromophenol | 38 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A1-43 (0-6)

GC/MS Semivolatiles

| | | | |
|---|---|---|---|
| Lot-Sample #...: C0D020489-025 | Work Order #...: LXGQ11AE | Matrix.....: SOLID |
| Date Sampled...: 03/30/10 | Date Received..: 04/02/10 | MS Run #.....: 0096021 |
| Prep Date.....: 04/06/10 | Analysis Date..: 04/06/10 | |
| Prep Batch #...: 0096045 | Analysis Time..: 17:17 | |
| Dilution Factor: 3.9 | Initial Wgt/Vol: 15.4 g | Final Wgt/Vol..: 0.5 mL |
| % Moisture.....: 36 | Analyst ID.....: 430261 | Instrument ID..: 732 |
| | Method.....: SW846 8270C | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 200 | ug/kg | 18 |
| Naphthalene | ND | 41 | ug/kg | 3.5 |
| Acenaphthylene | 16 J | 41 | ug/kg | 4.7 |
| Acenaphthene | 8.3 J | 41 | ug/kg | 3.9 |
| Fluorene | 9.7 J | 41 | ug/kg | 5.4 |
| Phenanthrene | 210 | 41 | ug/kg | 6.5 |
| Anthracene | 13 J | 41 | ug/kg | 4.0 |
| Fluoranthene | 260 | 41 | ug/kg | 4.3 |
| Pyrene | 120 J | 41 | ug/kg | 4.1 |
| Benzo(a)anthracene | 29 J | 41 | ug/kg | 5.1 |
| Chrysene | 63 | 41 | ug/kg | 4.8 |
| Benzo(b)fluoranthene | 71 | 41 | ug/kg | 6.4 |
| Benzo(k)fluoranthene | 35 J | 41 | ug/kg | 8.2 |
| Benzo(a)pyrene | 27 J | 41 | ug/kg | 4.1 |
| Indeno(1,2,3-cd)pyrene | 26 J | 41 | ug/kg | 4.2 |
| Dibenzo(a,h)anthracene | ND | 41 | ug/kg | 4.5 |
| Benzo(ghi)perylene | 28 J | 41 | ug/kg | 4.0 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 77 | (27 - 110) |
| Terphenyl-d14 | 72 | (21 - 130) |
| 2-Fluorobiphenyl | 74 | (28 - 108) |
| 2-Fluorophenol | 79 | (28 - 107) |
| Phenol-d5 | 70 | (30 - 112) |
| 2,4,6-Tribromophenol | 81 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A1-44 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-026 | Work Order #...: | LXGQ21AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/30/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0096021 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/06/10 | | |
| Prep Batch #...: | 0096045 | Analysis Time..: | 17:40 | | |
| Dilution Factor: | 2 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 38 | Analyst ID.....: | 430261 | Instrument ID..: | 732 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 21 J | 110 | ug/kg | 9.6 |
| Naphthalene | 120 | 22 | ug/kg | 1.8 |
| Acenaphthylene | 62 | 22 | ug/kg | 2.5 |
| Acenaphthene | 9.7 J | 22 | ug/kg | 2.1 |
| Fluorene | 8.6 J | 22 | ug/kg | 2.8 |
| Phenanthrene | 480 | 22 | ug/kg | 3.4 |
| Anthracene | 110 | 22 | ug/kg | 2.1 |
| Fluoranthene | 630 | 22 | ug/kg | 2.3 |
| Pyrene | 380 | 22 | ug/kg | 2.2 |
| Benzo(a)anthracene | 240 | 22 | ug/kg | 2.7 |
| Chrysene | 280 | 22 | ug/kg | 2.6 |
| Benzo(b)fluoranthene | 310 | 22 | ug/kg | 3.4 |
| Benzo(k)fluoranthene | 140 | 22 | ug/kg | 4.3 |
| Benzo(a)pyrene | 170 | 22 | ug/kg | 2.1 |
| Indeno(1,2,3-cd)pyrene | 120 | 22 | ug/kg | 2.2 |
| Dibenzo(a,h)anthracene | 41 | 22 | ug/kg | 2.4 |
| Benzo(ghi)perylene | 120 | 22 | ug/kg | 2.1 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 32 | (27 - 110) |
| Terphenyl-d14 | 31 | (21 - 130) |
| 2-Fluorobiphenyl | 30 | (28 - 108) |
| 2-Fluorophenol | 33 | (28 - 107) |
| Phenol-d5 | 28 * | (30 - 112) |
| 2,4,6-Tribromophenol | 38 | (21 - 116) |

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: FIELD DUPLICATE #4

GC/MS Semivolatiles

Lot-Sample #...: C0D020489-027
Date Sampled...: 03/30/10
Prep Date.....: 04/06/10
Prep Batch #...: 0096045
Dilution Factor: 1.97
% Moisture.....: 34

Work Order #...: LXGQ41AC
Date Received..: 04/02/10
Analysis Date..: 04/06/10
Analysis Time..: 18:03
Initial Wgt/Vol: 15.2 g
Analyst ID.....: 430261
Method.....: SW846 8270C

Matrix.....: SOLID
MS Run #.....: 0096021

Final Wgt/Vol..: 0.5 mL
Instrument ID..: 732

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 40 J | 98 | ug/kg | 8.9 |
| Naphthalene | 86 | 20 | ug/kg | 1.7 |
| Acenaphthylene | 67 | 20 | ug/kg | 2.3 |
| Acenaphthene | 6.9 J | 20 | ug/kg | 1.9 |
| Fluorene | 8.6 J | 20 | ug/kg | 2.6 |
| Phenanthrene | 230 | 20 | ug/kg | 3.2 |
| Anthracene | 87 | 20 | ug/kg | 1.9 |
| Fluoranthene | 390 | 20 | ug/kg | 2.1 |
| Pyrene | 260 | 20 | ug/kg | 2.0 |
| Benzo(a)anthracene | 170 | 20 | ug/kg | 2.5 |
| Chrysene | 240 | 20 | ug/kg | 2.4 |
| Benzo(b)fluoranthene | 290 | 20 | ug/kg | 3.1 |
| Benzo(k)fluoranthene | 180 | 20 | ug/kg | 4.0 |
| Benzo(a)pyrene | 160 | 20 | ug/kg | 2.0 |
| Indeno(1,2,3-cd)pyrene | 140 | 20 | ug/kg | 2.0 |
| Dibenzo(a,h)anthracene | 46 | 20 | ug/kg | 2.2 |
| Benzo(ghi)perylene | 140 | 20 | ug/kg | 2.0 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 47 | (27 - 110) |
| Terphenyl-d14 | 49 | (21 - 130) |
| 2-Fluorobiphenyl | 47 | (28 - 108) |
| 2-Fluorophenol | 50 | (28 - 107) |
| Phenol-d5 | 45 | (30 - 112) |
| 2,4,6-Tribromophenol | 59 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A1-45 (0-6)

GC/MS Semivolatiles

| | | | |
|---|---|---|---|
| Lot-Sample #...: C0D020489-029 | Work Order #...: LXGQ71AC | Matrix.....: SOLID | |
| Date Sampled...: 03/30/10 | Date Received..: 04/02/10 | MS Run #.....: 0096021 | |
| Prep Date.....: 04/06/10 | Analysis Date..: 04/06/10 | | |
| Prep Batch #...: 0096045 | Analysis Time..: 18:49 | | |
| Dilution Factor: 0.99 | Initial Wgt/Vol: 15.1 g | Final Wgt/Vol..: 0.5 mL | |
| % Moisture.....: 28 | Analyst ID.....: 430261 | Instrument ID..: 732 | |
| | Method.....: SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 46 | ug/kg | 4.1 |
| Naphthalene | 8.0 J | 9.2 | ug/kg | 0.79 |
| Acenaphthylene | 2.8 J | 9.2 | ug/kg | 1.1 |
| Acenaphthene | ND | 9.2 | ug/kg | 0.88 |
| Fluorene | ND | 9.2 | ug/kg | 1.2 |
| Phenanthrene | 9.7 | 9.2 | ug/kg | 1.5 |
| Anthracene | 3.4 J | 9.2 | ug/kg | 0.90 |
| Fluoranthene | 23 | 9.2 | ug/kg | 0.98 |
| Pyrene | 16 | 9.2 | ug/kg | 0.93 |
| Benzo(a)anthracene | 9.0 J | 9.2 | ug/kg | 1.2 |
| Chrysene | 15 | 9.2 | ug/kg | 1.1 |
| Benzo(b)fluoranthene | 13 | 9.2 | ug/kg | 1.4 |
| Benzo(k)fluoranthene | 6.0 J | 9.2 | ug/kg | 1.9 |
| Benzo(a)pyrene | 8.0 J | 9.2 | ug/kg | 0.92 |
| Indeno(1,2,3-cd)pyrene | 6.1 J | 9.2 | ug/kg | 0.95 |
| Dibenzo(a,h)anthracene | ND | 9.2 | ug/kg | 1.0 |
| Benzo(ghi)perylene | 6.0 J | 9.2 | ug/kg | 0.92 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 51 | (27 - 110) |
| Terphenyl-d14 | 50 | (21 - 130) |
| 2-Fluorobiphenyl | 48 | (28 - 108) |
| 2-Fluorophenol | 51 | (28 - 107) |
| Phenol-d5 | 45 | (30 - 112) |
| 2,4,6-Tribromophenol | 52 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A1-46 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-030 | Work Order #...: | LXGQ81AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/30/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0096021 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/06/10 | | |
| Prep Batch #...: | 0096045 | Analysis Time..: | 19:12 | | |
| Dilution Factor: | 2 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 40 | Analyst ID.....: | 430261 | Instrument ID..: | 732 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 110 | ug/kg | 9.9 |
| Naphthalene | 10 J | 22 | ug/kg | 1.9 |
| Acenaphthylene | 15 J | 22 | ug/kg | 2.5 |
| Acenaphthene | 2.2 J | 22 | ug/kg | 2.1 |
| Fluorene | 3.4 J | 22 | ug/kg | 2.9 |
| Phenanthrene | 31 | 22 | ug/kg | 3.5 |
| Anthracene | 17 J | 22 | ug/kg | 2.2 |
| Fluoranthene | 73 | 22 | ug/kg | 2.4 |
| Pyrene | 56 | 22 | ug/kg | 2.2 |
| Benzo(a)anthracene | 39 | 22 | ug/kg | 2.8 |
| Chrysene | 55 | 22 | ug/kg | 2.6 |
| Benzo(b)fluoranthene | 76 | 22 | ug/kg | 3.5 |
| Benzo(k)fluoranthene | 26 | 22 | ug/kg | 4.5 |
| Benzo(a)pyrene | 45 | 22 | ug/kg | 2.2 |
| Indeno(1,2,3-cd)pyrene | 34 | 22 | ug/kg | 2.3 |
| Dibenzo(a,h)anthracene | 8.2 J | 22 | ug/kg | 2.5 |
| Benzo(ghi)perylene | 35 | 22 | ug/kg | 2.2 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 40 | (27 - 110) |
| Terphenyl-d14 | 39 | (21 - 130) |
| 2-Fluorobiphenyl | 37 | (28 - 108) |
| 2-Fluorophenol | 40 | (28 - 107) |
| Phenol-d5 | 35 | (30 - 112) |
| 2,4,6-Tribromophenol | 44 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A1-47 (0-6)

GC/MS Semivolatiles

| | | | |
|---|---|---|---|
| Lot-Sample #...: | C0D020489-028 | Work Order #...: | LXGQ51AC |
| Date Sampled...: | 03/30/10 | Date Received..: | 04/02/10 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/06/10 |
| Prep Batch #...: | 0096045 | Analysis Time..: | 18:26 |
| Dilution Factor: | 1.97 | Initial Wgt/Vol: | 15.2 g |
| % Moisture.....: | 35 | Analyst ID.....: | 430261 |
| | | Method.....: | SW846 8270C |

| | | | | |
|---|---|---|---|---|
| Matrix.....: | SOLID | | | |
| MS Run #.....: | 0096021 | | | |
| Final Wgt/Vol..: | 0.5 mL | | | |
| Instrument ID..: | 732 | | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 22 J | 100 | ug/kg | 9.0 |
| Naphthalene | 49 | 20 | ug/kg | 1.7 |
| Acenaphthylene | 36 | 20 | ug/kg | 2.3 |
| Acenaphthene | 3.3 J | 20 | ug/kg | 1.9 |
| Fluorene | 5.7 J | 20 | ug/kg | 2.7 |
| Phenanthrene | 100 | 20 | ug/kg | 3.2 |
| Anthracene | 43 | 20 | ug/kg | 2.0 |
| Fluoranthene | 160 | 20 | ug/kg | 2.2 |
| Pyrene | 120 | 20 | ug/kg | 2.0 |
| Benzo(a)anthracene | 90 | 20 | ug/kg | 2.5 |
| Chrysene | 120 | 20 | ug/kg | 2.4 |
| Benzo(b)fluoranthene | 160 | 20 | ug/kg | 3.2 |
| Benzo(k)fluoranthene | 72 | 20 | ug/kg | 4.1 |
| Benzo(a)pyrene | 91 | 20 | ug/kg | 2.0 |
| Indeno(1,2,3-cd)pyrene | 72 | 20 | ug/kg | 2.1 |
| Dibenzo(a,h)anthracene | 23 | 20 | ug/kg | 2.2 |
| Benzo(ghi)perylene | 69 | 20 | ug/kg | 2.0 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 34 | (27 - 110) |
| Terphenyl-d14 | 31 | (21 - 130) |
| 2-Fluorobiphenyl | 31 | (28 - 108) |
| 2-Fluorophenol | 34 | (28 - 107) |
| Phenol-d5 | 31 | (30 - 112) |
| 2,4,6-Tribromophenol | 33 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A1-48 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-031 | Work Order #...: | LXGQ91AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/30/10 10:50 | Date Received..: | 04/02/10 10:15 | MS Run #.....: | 0096021 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096045 | Analysis Time..: | 20:13 | | |
| Dilution Factor: | 3 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 23 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 130 | ug/kg | 12 |
| **Naphthalene** | **20 J** | **26** | **ug/kg** | **2.2** |
| **Acenaphthylene** | **18 J** | **26** | **ug/kg** | **3.0** |
| **Acenaphthene** | **7.1 J** | **26** | **ug/kg** | **2.5** |
| **Fluorene** | **5.8 J** | **26** | **ug/kg** | **3.4** |
| **Phenanthrene** | **100** | **26** | **ug/kg** | **4.1** |
| **Anthracene** | **30** | **26** | **ug/kg** | **2.5** |
| **Fluoranthene** | **200** | **26** | **ug/kg** | **2.8** |
| **Pyrene** | **130** | **26** | **ug/kg** | **2.6** |
| **Benzo(a)anthracene** | **89** | **26** | **ug/kg** | **3.3** |
| **Chrysene** | **110** | **26** | **ug/kg** | **3.1** |
| **Benzo(b)fluoranthene** | **150** | **26** | **ug/kg** | **4.1** |
| **Benzo(k)fluoranthene** | **46** | **26** | **ug/kg** | **5.3** |
| **Benzo(a)pyrene** | **89** | **26** | **ug/kg** | **2.6** |
| **Indeno(1,2,3-cd)pyrene** | **76** | **26** | **ug/kg** | **2.7** |
| **Dibenzo(a,h)anthracene** | **21 J** | **26** | **ug/kg** | **2.9** |
| **Benzo(ghi)perylene** | **82** | **26** | **ug/kg** | **2.6** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 71 | (27 - 110) |
| Terphenyl-d14 | 56 | (21 - 130) |
| 2-Fluorobiphenyl | 57 | (28 - 108) |
| 2-Fluorophenol | 62 | (28 - 107) |
| Phenol-d5 | 64 | (30 - 112) |
| 2,4,6-Tribromophenol | 65 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

**ARCADIS U.S., Inc.**

**Client Sample ID: A2-11 (0-6)**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-003 | **Work Order #...:** | LXGP01AC | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/29/10 15:50 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095277 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095430 | **Analysis Time..:** | 13:43 | | |
| **Dilution Factor:** | 10 | **Initial Wgt/Vol:** | 15 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 38 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 733 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| **Pentachlorophenol** | **3100** | **530** | **ug/kg** | **48** |
| **Naphthalene** | **180** | **110** | **ug/kg** | **9.3** |
| **Acenaphthylene** | **1600** | **110** | **ug/kg** | **12** |
| **Acenaphthene** | **93 J** | **110** | **ug/kg** | **10** |
| **Fluorene** | **110** | **110** | **ug/kg** | **14** |
| **Phenanthrene** | **540** | **110** | **ug/kg** | **17** |
| **Anthracene** | **1900** | **110** | **ug/kg** | **11** |
| **Fluoranthene** | **4100** | **110** | **ug/kg** | **11** |
| **Pyrene** | **4500** | **110** | **ug/kg** | **11** |
| **Benzo(a)anthracene** | **3100** | **110** | **ug/kg** | **13** |
| **Chrysene** | **4300** | **110** | **ug/kg** | **13** |
| **Benzo(b)fluoranthene** | **9700** J4 | **110** | **ug/kg** | **17** |
| Benzo(k)fluoranthene | ~~ND~~ 8800 J4 | 110 | ug/kg | 22 |
| **Benzo(a)pyrene** | **4200** | **110** | **ug/kg** | **11** |
| **Indeno(1,2,3-cd)pyrene** | **3300** | **110** | **ug/kg** | **11** |
| **Dibenzo(a,h)anthracene** | **1000** | **110** | **ug/kg** | **12** |
| **Benzo(ghi)perylene** | **3400** | **110** | **ug/kg** | **11** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 73 | (27 - 110) |
| Terphenyl-d14 | 78 | (21 - 130) |
| 2-Fluorobiphenyl | 82 | (28 - 108) |
| 2-Fluorophenol | 76 | (28 - 107) |
| Phenol-d5 | 68 | (30 - 112) |
| 2,4,6-Tribromophenol | 80 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A2-12 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-001 | Work Order #...: | LXGPP1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/29/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0095277 |
| Prep Date.....: | 04/05/10 | Analysis Date..: | 04/06/10 | | |
| Prep Batch #...: | 0095430 | Analysis Time..: | 13:21 | | |
| Dilution Factor: | 50 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 32 | Analyst ID.....: | 003200 | Instrument ID..: | 733 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 14000 DS | 2400 | ug/kg | 220 |
| Naphthalene | 910 | 500 | ug/kg | 42 |
| Acenaphthylene | 8900 | 500 | ug/kg | 56 |
| Acenaphthene | 350 J | 500 | ug/kg | 47 |
| Fluorene | 370 J | 500 | ug/kg | 65 |
| Phenanthrene | 1600 | 500 | ug/kg | 78 |
| Anthracene | 11000 | 500 | ug/kg | 48 |
| Fluoranthene | 14000 | 500 | ug/kg | 53 |
| Pyrene | 19000 | 500 | ug/kg | 50 |
| Benzo(a)anthracene | 19000 | 500 | ug/kg | 62 |
| Chrysene | 28000 | 500 | ug/kg | 59 |
| Benzo(b)fluoranthene | 47000 | 500 | ug/kg | 77 |
| Benzo(k)fluoranthene | 22000 | 500 | ug/kg | 100 |
| Benzo(a)pyrene | 28000 | 500 | ug/kg | 49 |
| Indeno(1,2,3-cd)pyrene | 21000 | 500 | ug/kg | 51 |
| Dibenzo(a,h)anthracene | 6800 | 500 | ug/kg | 55 |
| Benzo(ghi)perylene | 21000 | 500 | ug/kg | 49 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

**ARCADIS U.S., Inc.**

**Client Sample ID: A2-13 (0-6)**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-004 | **Work Order #...:** | LXGP21AC | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/29/10 15:20 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095277 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095430 | **Analysis Time..:** | 14:06 | | |
| **Dilution Factor:** | 2 | **Initial Wgt/Vol:** | 15 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 29 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 733 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| **Pentachlorophenol** | **78 J** | **94** | **ug/kg** | **8.5** |
| **Naphthalene** | **20** J | **19** | **ug/kg** | **1.6** |
| **Acenaphthylene** | **81** J | **19** | **ug/kg** | **2.2** |
| **Acenaphthene** | **6.4 J** | **19** | **ug/kg** | **1.8** |
| Fluorene | ND UJ | 19 | ug/kg | 2.5 |
| **Phenanthrene** | **86** J | **19** | **ug/kg** | **3.0** |
| **Anthracene** | **91** | **19** | **ug/kg** | **1.9** |
| **Fluoranthene** | **260** J | **19** | **ug/kg** | **2.0** |
| **Pyrene** | **230** J | **19** | **ug/kg** | **1.9** |
| **Benzo(a)anthracene** | **140** J | **19** | **ug/kg** | **2.4** |
| **Chrysene** | **220** | **19** | **ug/kg** | **2.3** |
| **Benzo(b)fluoranthene** | **400** J | **19** | **ug/kg** | **3.0** |
| Benzo(k)fluoranthene | ~~ND~~ 370 J | 19 | ug/kg | 3.8 |
| **Benzo(a)pyrene** | **180** J | **19** | **ug/kg** | **1.9** |
| **Indeno(1,2,3-cd)pyrene** | **130** J | **19** | **ug/kg** | **1.9** |
| **Dibenzo(a,h)anthracene** | **44** | **19** | **ug/kg** | **2.1** |
| **Benzo(ghi)perylene** | **150** J | **19** | **ug/kg** | **1.9** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 71 | (27 - 110) |
| Terphenyl-d14 | 70 | (21 - 130) |
| 2-Fluorobiphenyl | 75 | (28 - 108) |
| 2-Fluorophenol | 67 | (28 - 107) |
| Phenol-d5 | 66 | (30 - 112) |
| 2,4,6-Tribromophenol | 74 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: FIELD DUPLICATE #1

GC/MS Semivolatiles

Lot-Sample #...: C0D020489-005
Date Sampled...: 03/29/10
Prep Date.....: 04/05/10
Prep Batch #...: 0095430
Dilution Factor: 1.97
% Moisture.....: 34

Work Order #...: LXGP31AC
Date Received..: 04/02/10
Analysis Date..: 04/06/10
Analysis Time..: 14:28
Initial Wgt/Vol: 15.2 g
Analyst ID.....: 003200
Method.....: SW846 8270C

Matrix.....: SOLID
MS Run #.....: 0095277

Final Wgt/Vol..: 0.5 mL
Instrument ID..: 733

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 61 J | 99 | ug/kg | 8.9 |
| Naphthalene | 160 J | 20 | ug/kg | 1.7 |
| Acenaphthylene | 280 J | 20 | ug/kg | 2.3 |
| Acenaphthene | 33 | 20 | ug/kg | 1.9 |
| Fluorene | 81 J | 20 | ug/kg | 2.6 |
| Phenanthrene | 1200 J | 20 | ug/kg | 3.2 |
| Anthracene | 170 | 20 | ug/kg | 2.0 |
| Fluoranthene | 1400 J | 20 | ug/kg | 2.1 |
| Pyrene | 1100 J | 20 | ug/kg | 2.0 |
| Benzo(a)anthracene | 440 J | 20 | ug/kg | 2.5 |
| Chrysene | 620 | 20 | ug/kg | 2.4 |
| Benzo(b)fluoranthene | 720 | 20 | ug/kg | 3.1 |
| Benzo(k)fluoranthene | 280 | 20 | ug/kg | 4.0 |
| Benzo(a)pyrene | 570 J | 20 | ug/kg | 2.0 |
| Indeno(1,2,3-cd)pyrene | 400 J | 20 | ug/kg | 2.1 |
| Dibenzo(a,h)anthracene | 100 | 20 | ug/kg | 2.2 |
| Benzo(ghi)perylene | 490 J | 20 | ug/kg | 2.0 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 57 | (27 - 110) |
| Terphenyl-d14 | 68 | (21 - 130) |
| 2-Fluorobiphenyl | 66 | (28 - 108) |
| 2-Fluorophenol | 55 | (28 - 107) |
| Phenol-d5 | 59 | (30 - 112) |
| 2,4,6-Tribromophenol | 73 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A2-14 (0-6)

GC/MS Semivolatiles

Lot-Sample #...: C0D020489-006
Date Sampled...: 03/29/10
Prep Date.....: 04/05/10
Prep Batch #...: 0095430
Dilution Factor: 49.34
% Moisture.....: 20

Work Order #...: LXGP41AC
Date Received..: 04/02/10
Analysis Date..: 04/06/10
Analysis Time..: 14:51
Initial Wgt/Vol: 15.2 g
Analyst ID.....: 003200
Method.....: SW846 8270C

Matrix.....: SOLID
MS Run #.....: 0095277

Final Wgt/Vol..: 0.5 mL
Instrument ID..: 733

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 71000 DJ | 2000 | ug/kg | 180 |
| Naphthalene | 940 | 420 | ug/kg | 36 |
| Acenaphthylene | 6100 | 420 | ug/kg | 47 |
| Acenaphthene | 260 J | 420 | ug/kg | 40 |
| Fluorene | 390 J | 420 | ug/kg | 54 |
| Phenanthrene | 2900 | 420 | ug/kg | 66 |
| Anthracene | 8400 | 420 | ug/kg | 40 |
| Fluoranthene | 18000 | 420 | ug/kg | 44 |
| Pyrene | 23000 | 420 | ug/kg | 42 |
| Benzo(a)anthracene | 17000 | 420 | ug/kg | 52 |
| Chrysene | 24000 | 420 | ug/kg | 49 |
| Benzo(b)fluoranthene | 38000 | 420 | ug/kg | 65 |
| Benzo(k)fluoranthene | 18000 | 420 | ug/kg | 84 |
| Benzo(a)pyrene | 16000 | 420 | ug/kg | 41 |
| Indeno(1,2,3-cd)pyrene | 13000 | 420 | ug/kg | 43 |
| Dibenzo(a,h)anthracene | 4900 | 420 | ug/kg | 46 |
| Benzo(ghi)perylene | 12000 | 420 | ug/kg | 41 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

**ARCADIS U.S., Inc.**

**Client Sample ID: A2-15 (0-6)**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-007 | **Work Order #...:** | LXGP51AC | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/29/10 15:10 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095277 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095430 | **Analysis Time..:** | 15:14 | | |
| **Dilution Factor:** | 50 | **Initial Wgt/Vol:** | 15 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 29 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 733 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|---|
| **Pentachlorophenol** | **21000** | DJ | **2300** | **ug/kg** | **210** |
| **Naphthalene** | **2300** | | **470** | **ug/kg** | **41** |
| **Acenaphthylene** | **17000** | | **470** | **ug/kg** | **54** |
| **Acenaphthene** | **960** | | **470** | **ug/kg** | **45** |
| **Fluorene** | **1400** | | **470** | **ug/kg** | **62** |
| **Phenanthrene** | **4100** | | **470** | **ug/kg** | **75** |
| **Anthracene** | **24000** | | **470** | **ug/kg** | **46** |
| **Fluoranthene** | **23000** | | **470** | **ug/kg** | **50** |
| **Pyrene** | **23000** | | **470** | **ug/kg** | **48** |
| **Benzo(a)anthracene** | **20000** | | **470** | **ug/kg** | **59** |
| **Chrysene** | **27000** | | **470** | **ug/kg** | **56** |
| **Benzo(b)fluoranthene** | **91000** | 4 | **470** | **ug/kg** | **74** |
| Benzo(k)fluoranthene | ~~ND~~ 83000 | 4 | 470 | ug/kg | 95 |
| **Benzo(a)pyrene** | **39000** | | **470** | **ug/kg** | **47** |
| **Indeno(1,2,3-cd)pyrene** | **36000** | | **470** | **ug/kg** | **48** |
| **Dibenzo(a,h)anthracene** | **13000** | | **470** | **ug/kg** | **52** |
| **Benzo(ghi)perylene** | **34000** | | **470** | **ug/kg** | **47** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

**NOTE(S):**

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

**ARCADIS U.S., Inc.**

**Client Sample ID: A2-16 (0-6)**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-008 | **Work Order #...:** | LXGP61AC | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/29/10 15:00 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095277 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095430 | **Analysis Time..:** | 15:37 | | |
| **Dilution Factor:** | 50 | **Initial Wgt/Vol:** | 15 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 43 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 733 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| **Pentachlorophenol** | **27000** DS | **2900** | **ug/kg** | **260** |
| **Naphthalene** | **2000** | **590** | **ug/kg** | **51** |
| **Acenaphthylene** | **15000** | **590** | **ug/kg** | **67** |
| **Acenaphthene** | **690** | **590** | **ug/kg** | **56** |
| **Fluorene** | **1200** | **590** | **ug/kg** | **77** |
| **Phenanthrene** | **3100** | **590** | **ug/kg** | **93** |
| **Anthracene** | **27000** | **590** | **ug/kg** | **57** |
| **Fluoranthene** | **16000** | **590** | **ug/kg** | **63** |
| **Pyrene** | **18000** | **590** | **ug/kg** | **59** |
| **Benzo(a)anthracene** | **16000** | **590** | **ug/kg** | **73** |
| **Chrysene** | **23000** | **590** | **ug/kg** | **70** |
| **Benzo(b)fluoranthene** | **79000** Y | **590** | **ug/kg** | **92** |
| Benzo(k)fluoranthene | ~~ND~~ 72000 Y | 590 | ug/kg | 120 |
| **Benzo(a)pyrene** | **28000** | **590** | **ug/kg** | **59** |
| **Indeno(1,2,3-cd)pyrene** | **30000** | **590** | **ug/kg** | **60** |
| **Dibenzo(a,h)anthracene** | **8700** | **590** | **ug/kg** | **65** |
| **Benzo(ghi)perylene** | **29000** | **590** | **ug/kg** | **58** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

**NOTE(S):**

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

**ARCADIS U.S., Inc.**

**Client Sample ID: A2-17 (0-6)**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-009 | **Work Order #...:** | LXGP81AE | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/29/10 14:40 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095277 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095430 | **Analysis Time..:** | 16:01 | | |
| **Dilution Factor:** | 40 | **Initial Wgt/Vol:** | 15 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 40 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 733 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|---|
| **Pentachlorophenol** | **40000** | DJ | **2200** | **ug/kg** | **200** |
| **Naphthalene** | **1400** | | **440** | **ug/kg** | **38** |
| **Acenaphthylene** | **7800** | | **440** | **ug/kg** | **51** |
| **Acenaphthene** | **470** | | **440** | **ug/kg** | **42** |
| **Fluorene** | **610** | | **440** | **ug/kg** | **58** |
| **Phenanthrene** | **2800** | | **440** | **ug/kg** | **70** |
| **Anthracene** | **12000** | | **440** | **ug/kg** | **43** |
| **Fluoranthene** | **19000** | | **440** | **ug/kg** | **47** |
| **Pyrene** | **19000** | | **440** | **ug/kg** | **45** |
| **Benzo(a)anthracene** | **12000** | | **440** | **ug/kg** | **55** |
| **Chrysene** | **16000** | | **440** | **ug/kg** | **53** |
| **Benzo(b)fluoranthene** | **41000** | Y | **440** | **ug/kg** | **69** |
| Benzo(k)fluoranthene | ~~ND~~ 37000 | Y | 440 | ug/kg | 89 |
| **Benzo(a)pyrene** | **15000** | | **440** | **ug/kg** | **44** |
| **Indeno(1,2,3-cd)pyrene** | **15000** | | **440** | **ug/kg** | **46** |
| **Dibenzo(a,h)anthracene** | **4800** | | **440** | **ug/kg** | **49** |
| **Benzo(ghi)perylene** | **15000** | | **440** | **ug/kg** | **44** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

**NOTE(S):**

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

**ARCADIS U.S., Inc.**

**Client Sample ID: A2-18 (0-6)**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-010 | **Work Order #...:** | LXGP91AC | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/29/10 14:30 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095277 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095430 | **Analysis Time..:** | 17:12 | | |
| **Dilution Factor:** | 4 | **Initial Wgt/Vol:** | 15 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 28 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 733 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| **Pentachlorophenol** | **2300** | **180** | **ug/kg** | **16** |
| **Naphthalene** | **100** | **37** | **ug/kg** | **3.2** |
| **Acenaphthylene** | **1300** | **37** | **ug/kg** | **4.2** |
| **Acenaphthene** | **51** | **37** | **ug/kg** | **3.5** |
| **Fluorene** | **81** | **37** | **ug/kg** | **4.9** |
| **Phenanthrene** | **550** | **37** | **ug/kg** | **5.9** |
| **Anthracene** | **1400** | **37** | **ug/kg** | **3.6** |
| **Fluoranthene** | **4200** | **37** | **ug/kg** | **3.9** |
| **Pyrene** | **4100** | **37** | **ug/kg** | **3.7** |
| **Benzo(a)anthracene** | **2800** | **37** | **ug/kg** | **4.6** |
| **Chrysene** | **4400** | **37** | **ug/kg** | **4.4** |
| **Benzo(b)fluoranthene** | **6000** | **37** | **ug/kg** | **5.8** |
| **Benzo(k)fluoranthene** | **2600** | **37** | **ug/kg** | **7.4** |
| **Benzo(a)pyrene** | **3200** | **37** | **ug/kg** | **3.7** |
| **Indeno(1,2,3-cd)pyrene** | **2700** | **37** | **ug/kg** | **3.8** |
| **Dibenzo(a,h)anthracene** | **960** | **37** | **ug/kg** | **4.1** |
| **Benzo(ghi)perylene** | **2700** | **37** | **ug/kg** | **3.7** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 83 | (27 - 110) |
| Terphenyl-d14 | 87 | (21 - 130) |
| 2-Fluorobiphenyl | 91 | (28 - 108) |
| 2-Fluorophenol | 79 | (28 - 107) |
| Phenol-d5 | 80 | (30 - 112) |
| 2,4,6-Tribromophenol | 94 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

**ARCADIS U.S., Inc.**

**Client Sample ID: A2-19 (0-6)**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-011 | **Work Order #...:** | LXGQA1AC | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/29/10 15:40 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095277 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095430 | **Analysis Time..:** | 17:36 | | |
| **Dilution Factor:** | 49.34 | **Initial Wgt/Vol:** | 15.2 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 37 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 733 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| **Pentachlorophenol** | **22000** DJ | **2600** | **ug/kg** | **230** |
| **Naphthalene** | **1200** | **520** | **ug/kg** | **45** |
| **Acenaphthylene** | **8900** | **520** | **ug/kg** | **60** |
| **Acenaphthene** | **570** | **520** | **ug/kg** | **50** |
| **Fluorene** | **3100** | **520** | **ug/kg** | **69** |
| **Phenanthrene** | **6000** | **520** | **ug/kg** | **83** |
| **Anthracene** | **32000** | **520** | **ug/kg** | **51** |
| **Fluoranthene** | **11000** | **520** | **ug/kg** | **56** |
| **Pyrene** | **11000** | **520** | **ug/kg** | **53** |
| **Benzo(a)anthracene** | **8000** | **520** | **ug/kg** | **65** |
| **Chrysene** | **21000** | **520** | **ug/kg** | **62** |
| **Benzo(b)fluoranthene** | **35000** | **520** | **ug/kg** | **82** |
| **Benzo(k)fluoranthene** | **13000** | **520** | **ug/kg** | **110** |
| **Benzo(a)pyrene** | **17000** | **520** | **ug/kg** | **52** |
| **Indeno(1,2,3-cd)pyrene** | **16000** | **520** | **ug/kg** | **54** |
| **Dibenzo(a,h)anthracene** | **5700** | **520** | **ug/kg** | **58** |
| **Benzo(ghi)perylene** | **15000** | **520** | **ug/kg** | **52** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

**NOTE(S):**

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

**ARCADIS U.S., Inc.**

**Client Sample ID: FIELD DUPLICATE #2**

**GC/MS Semivolatiles**

| | | | |
|---|---|---|---|
| **Lot-Sample #...:** C0D020489-012 | **Work Order #...:** LXGQC1AC | **Matrix.....:** SOLID | |
| **Date Sampled...:** 03/29/10 | **Date Received..:** 04/02/10 10:15 | **MS Run #.....:** 0095277 | |
| **Prep Date.....:** 04/05/10 | **Analysis Date..:** 04/06/10 | | |
| **Prep Batch #...:** 0095430 | **Analysis Time..:** 17:59 | | |
| **Dilution Factor:** 39.73 | **Initial Wgt/Vol:** 15.1 g | **Final Wgt/Vol..:** 0.5 mL | |
| **% Moisture.....:** 37 | **Analyst ID.....:** 003200 | **Instrument ID..:** 733 | |
| | **Method.....:** SW846 8270C | | |

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|---|
| **Pentachlorophenol** | **20000** | D5 | **2100** | **ug/kg** | **190** |
| **Naphthalene** | **1100** | | **420** | **ug/kg** | **36** |
| **Acenaphthylene** | **9200** | | **420** | **ug/kg** | **48** |
| **Acenaphthene** | **570** | | **420** | **ug/kg** | **40** |
| **Fluorene** | **1500** | | **420** | **ug/kg** | **55** |
| **Phenanthrene** | **3000** | | **420** | **ug/kg** | **67** |
| **Anthracene** | **26000** | | **420** | **ug/kg** | **41** |
| **Fluoranthene** | **11000** | | **420** | **ug/kg** | **45** |
| **Pyrene** | **11000** | | **420** | **ug/kg** | **43** |
| **Benzo(a)anthracene** | **7600** | | **420** | **ug/kg** | **53** |
| **Chrysene** | **17000** | | **420** | **ug/kg** | **50** |
| **Benzo(b)fluoranthene** | **43000** | Y | **420** | **ug/kg** | **66** |
| Benzo(k)fluoranthene | ~~ND~~ 39000 | Y | 420 | ug/kg | 85 |
| **Benzo(a)pyrene** | **17000** | | **420** | **ug/kg** | **42** |
| **Indeno(1,2,3-cd)pyrene** | **16000** | | **420** | **ug/kg** | **43** |
| **Dibenzo(a,h)anthracene** | **5100** | | **420** | **ug/kg** | **47** |
| **Benzo(ghi)perylene** | **16000** | | **420** | **ug/kg** | **42** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

**NOTE(S):**

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A3-18 (0-6)

GC/MS Semivolatiles

Lot-Sample #...: C0D020489-036
Date Sampled...: 03/30/10
Prep Date.....: 04/06/10
Prep Batch #...: 0096045
Dilution Factor: 0.97
% Moisture.....: 26

Work Order #...: LXGRG1AC
Date Received..: 04/02/10
Analysis Date..: 04/06/10
Analysis Time..: 20:39
Initial Wgt/Vol: 15.4 g
Analyst ID.....: 430261
Method.....: SW846 8270C

Matrix.....: SOLID
MS Run #.....: 0096021

Final Wgt/Vol..: 0.5 mL
Instrument ID..: 731

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 44 | ug/kg | 3.9 |
| Naphthalene | 1.6 J | 8.8 | ug/kg | 0.76 |
| Acenaphthylene | 4.7 J | 8.8 | ug/kg | 1.0 |
| Acenaphthene | 1.3 J | 8.8 | ug/kg | 0.84 |
| Fluorene | 1.6 J | 8.8 | ug/kg | 1.2 |
| Phenanthrene | 9.3 | 8.8 | ug/kg | 1.4 |
| Anthracene | 5.8 J | 8.8 | ug/kg | 0.86 |
| Fluoranthene | 22 | 8.8 | ug/kg | 0.94 |
| Pyrene | 16 | 8.8 | ug/kg | 0.89 |
| Benzo(a)anthracene | 11 | 8.8 | ug/kg | 1.1 |
| Chrysene | 13 | 8.8 | ug/kg | 1.0 |
| Benzo(b)fluoranthene | 22 | 8.8 | ug/kg | 1.4 |
| Benzo(k)fluoranthene | 7.4 J | 8.8 | ug/kg | 1.8 |
| Benzo(a)pyrene | 12 | 8.8 | ug/kg | 0.88 |
| Indeno(1,2,3-cd)pyrene | 12 | 8.8 | ug/kg | 0.91 |
| Dibenzo(a,h)anthracene | 3.1 J | 8.8 | ug/kg | 0.98 |
| Benzo(ghi)perylene | 14 | 8.8 | ug/kg | 0.87 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 46 | (27 - 110) |
| Terphenyl-d14 | 44 | (21 - 130) |
| 2-Fluorobiphenyl | 42 | (28 - 108) |
| 2-Fluorophenol | 47 | (28 - 107) |
| Phenol-d5 | 43 | (30 - 112) |
| 2,4,6-Tribromophenol | 44 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A3-19 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-037 | Work Order #...: | LXGRH1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/30/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0096021 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/06/10 | | |
| Prep Batch #...: | 0096045 | Analysis Time..: | 21:01 | | |
| Dilution Factor: | 2 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 37 | Analyst ID.....: | 430261 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 67 J | 110 | ug/kg | 9.5 |
| Naphthalene | 9.3 J | 21 | ug/kg | 1.8 |
| Acenaphthylene | 120 | 21 | ug/kg | 2.4 |
| Acenaphthene | 7.8 J | 21 | ug/kg | 2.0 |
| Fluorene | 13 J | 21 | ug/kg | 2.8 |
| Phenanthrene | 46 | 21 | ug/kg | 3.4 |
| Anthracene | 170 | 21 | ug/kg | 2.1 |
| Fluoranthene | 210 | 21 | ug/kg | 2.3 |
| Pyrene | 190 | 21 | ug/kg | 2.2 |
| Benzo(a)anthracene | 160 | 21 | ug/kg | 2.7 |
| Chrysene | 180 | 21 | ug/kg | 2.5 |
| Benzo(b)fluoranthene | 290 | 21 | ug/kg | 3.3 |
| Benzo(k)fluoranthene | 100 | 21 | ug/kg | 4.3 |
| Benzo(a)pyrene | 150 | 21 | ug/kg | 2.1 |
| Indeno(1,2,3-cd)pyrene | 190 | 21 | ug/kg | 2.2 |
| Dibenzo(a,h)anthracene | 56 | 21 | ug/kg | 2.4 |
| Benzo(ghi)perylene | 180 | 21 | ug/kg | 2.1 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 41 | (27 - 110) |
| Terphenyl-d14 | 33 | (21 - 130) |
| 2-Fluorobiphenyl | 37 | (28 - 108) |
| 2-Fluorophenol | 43 | (28 - 107) |
| Phenol-d5 | 39 | (30 - 112) |
| 2,4,6-Tribromophenol | 39 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A3-20 (0-6)

GC/MS Semivolatiles

Lot-Sample #...: C0D020489-034
Date Sampled...: 03/30/10
Prep Date.....: 04/06/10
Prep Batch #...: 0096045
Dilution Factor: 2
% Moisture.....: 43

Work Order #...: LXGRD1AC
Date Received..: 04/02/10
Analysis Date..: 04/06/10
Analysis Time..: 19:56
Initial Wgt/Vol: 15 g
Analyst ID.....: 430261
Method.....: SW846 8270C

Matrix.....: SOLID
MS Run #.....: 0096021

Final Wgt/Vol..: 0.5 mL
Instrument ID..: 731

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 37 J | 120 | ug/kg | 11 |
| Naphthalene | 18 J | 24 | ug/kg | 2.0 |
| Acenaphthylene | 64 | 24 | ug/kg | 2.7 |
| Acenaphthene | 8.1 J | 24 | ug/kg | 2.3 |
| Fluorene | 9.7 J | 24 | ug/kg | 3.1 |
| Phenanthrene | 74 | 24 | ug/kg | 3.7 |
| Anthracene | 74 | 24 | ug/kg | 2.3 |
| Fluoranthene | 220 | 24 | ug/kg | 2.5 |
| Pyrene | 150 J | 24 | ug/kg | 2.4 |
| Benzo(a)anthracene | 110 | 24 | ug/kg | 3.0 |
| Chrysene | 130 | 24 | ug/kg | 2.8 |
| Benzo(b)fluoranthene | 210 | 24 | ug/kg | 3.7 |
| Benzo(k)fluoranthene | 97 | 24 | ug/kg | 4.8 |
| Benzo(a)pyrene | 120 | 24 | ug/kg | 2.4 |
| Indeno(1,2,3-cd)pyrene | 130 | 24 | ug/kg | 2.4 |
| Dibenzo(a,h)anthracene | 35 | 24 | ug/kg | 2.6 |
| Benzo(ghi)perylene | 150 | 24 | ug/kg | 2.3 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 54 | (27 - 110) |
| Terphenyl-d14 | 46 | (21 - 130) |
| 2-Fluorobiphenyl | 51 | (28 - 108) |
| 2-Fluorophenol | 55 | (28 - 107) |
| Phenol-d5 | 51 | (30 - 112) |
| 2,4,6-Tribromophenol | 55 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: FIELD DUPLICATE #5

GC/MS Semivolatiles

| | | |
|---|---|---|
| Lot-Sample #...: C0D020489-035 | Work Order #...: LXGRF1AC | Matrix.....: SOLID |
| Date Sampled...: 03/30/10 | Date Received..: 04/02/10 | MS Run #.....: 0096021 |
| Prep Date.....: 04/06/10 | Analysis Date..: 04/06/10 | |
| Prep Batch #...: 0096045 | Analysis Time..: 20:17 | |
| Dilution Factor: 1.95 | Initial Wgt/Vol: 15.4 g | Final Wgt/Vol..: 0.5 mL |
| % Moisture.....: 46 | Analyst ID.....: 430261 | Instrument ID..: 731 |
| | Method.....: SW846 8270C | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 53 J | 120 | ug/kg | 11 |
| Naphthalene | 16 J | 24 | ug/kg | 2.1 |
| Acenaphthylene | 70 | 24 | ug/kg | 2.7 |
| Acenaphthene | 7.9 J | 24 | ug/kg | 2.3 |
| Fluorene | 11 J | 24 | ug/kg | 3.2 |
| Phenanthrene | 73 | 24 | ug/kg | 3.8 |
| Anthracene | 82 | 24 | ug/kg | 2.3 |
| Fluoranthene | 230 | 24 | ug/kg | 2.6 |
| Pyrene | 160 J | 24 | ug/kg | 2.4 |
| Benzo(a)anthracene | 110 | 24 | ug/kg | 3.0 |
| Chrysene | 150 | 24 | ug/kg | 2.9 |
| Benzo(b)fluoranthene | 250 | 24 | ug/kg | 3.8 |
| Benzo(k)fluoranthene | 84 | 24 | ug/kg | 4.8 |
| Benzo(a)pyrene | 130 | 24 | ug/kg | 2.4 |
| Indeno(1,2,3-cd)pyrene | 160 | 24 | ug/kg | 2.5 |
| Dibenzo(a,h)anthracene | 35 | 24 | ug/kg | 2.7 |
| Benzo(ghi)perylene | 180 | 24 | ug/kg | 2.4 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 40 | (27 - 110) |
| Terphenyl-d14 | 33 | (21 - 130) |
| 2-Fluorobiphenyl | 39 | (28 - 108) |
| 2-Fluorophenol | 41 | (28 - 107) |
| Phenol-d5 | 38 | (30 - 112) |
| 2,4,6-Tribromophenol | 43 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A3-21 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-040 | Work Order #...: | LXGRN1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/30/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0096021 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/06/10 | | |
| Prep Batch #...: | 0096045 | Analysis Time..: | 22:05 | | |
| Dilution Factor: | 20 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 36 | Analyst ID.....: | 430261 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|---|
| Pentachlorophenol | 18000 | DJ | 1000 | ug/kg | 93 |
| Naphthalene | 3800 | | 210 | ug/kg | 18 |
| Acenaphthylene | 4400 | | 210 | ug/kg | 24 |
| Acenaphthene | 860 | | 210 | ug/kg | 20 |
| Fluorene | 920 | | 210 | ug/kg | 28 |
| Phenanthrene | 15000 | | 210 | ug/kg | 33 |
| Anthracene | 9200 | | 210 | ug/kg | 20 |
| Fluoranthene | 25000 | | 210 | ug/kg | 22 |
| Pyrene | 13000 | | 210 | ug/kg | 21 |
| Benzo(a)anthracene | 9400 | | 210 | ug/kg | 26 |
| Chrysene | 11000 | | 210 | ug/kg | 25 |
| Benzo(b)fluoranthene | 21000 | | 210 | ug/kg | 33 |
| Benzo(k)fluoranthene | 6100 | | 210 | ug/kg | 42 |
| Benzo(a)pyrene | 5100 | | 210 | ug/kg | 21 |
| Indeno(1,2,3-cd)pyrene | 10000 | | 210 | ug/kg | 22 |
| Dibenzo(a,h)anthracene | ND | | 210 | ug/kg | 23 |
| Benzo(ghi)perylene | 8600 | | 210 | ug/kg | 21 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

**NOTE(S):**

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A3-22 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-039 | Work Order #...: | LXGRM1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/30/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0096021 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/06/10 | | |
| Prep Batch #...: | 0096045 | Analysis Time..: | 21:44 | | |
| Dilution Factor: | 19.87 | Initial Wgt/Vol: | 15.1 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 59 | Analyst ID.....: | 430261 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 1200 J | 1600 | ug/kg | 150 |
| Naphthalene | 110 J | 330 | ug/kg | 28 |
| Acenaphthylene | 1500 | 330 | ug/kg | 37 |
| Acenaphthene | 120 J | 330 | ug/kg | 31 |
| Fluorene | 160 J | 330 | ug/kg | 43 |
| Phenanthrene | 610 | 330 | ug/kg | 52 |
| Anthracene | 2200 | 330 | ug/kg | 32 |
| Fluoranthene | 2400 | 330 | ug/kg | 35 |
| Pyrene | 1800 | 330 | ug/kg | 33 |
| Benzo(a)anthracene | 1300 | 330 | ug/kg | 41 |
| Chrysene | 1500 | 330 | ug/kg | 39 |
| Benzo(b)fluoranthene | 2700 | 330 | ug/kg | 51 |
| Benzo(k)fluoranthene | 1000 | 330 | ug/kg | 66 |
| Benzo(a)pyrene | 1100 | 330 | ug/kg | 33 |
| Indeno(1,2,3-cd)pyrene | 2400 | 330 | ug/kg | 34 |
| Dibenzo(a,h)anthracene | 600 | 330 | ug/kg | 36 |
| Benzo(ghi)perylene | 2600 | 330 | ug/kg | 32 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A3-23 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-038 | Work Order #...: | LXGRK1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/30/10 11:25 | Date Received..: | 04/02/10 10:15 | MS Run #.....: | 0096021 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096045 | Analysis Time..: | 20:36 | | |
| Dilution Factor: | 4.9 | Initial Wgt/Vol: | 15.3 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 38 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 570 | 260 | ug/kg | 24 |
| Naphthalene | 120 | 53 | ug/kg | 4.5 |
| Acenaphthylene | 1100 | 53 | ug/kg | 6.0 |
| Acenaphthene | 47 J | 53 | ug/kg | 5.0 |
| Fluorene | 79 | 53 | ug/kg | 6.9 |
| Phenanthrene | 570 | 53 | ug/kg | 8.4 |
| Anthracene | 1200 | 53 | ug/kg | 5.1 |
| Fluoranthene | 1800 | 53 | ug/kg | 5.6 |
| Pyrene | 1400 | 53 | ug/kg | 5.3 |
| Benzo(a)anthracene | 1000 | 53 | ug/kg | 6.6 |
| Chrysene | 1800 | 53 | ug/kg | 6.3 |
| Benzo(b)fluoranthene | 4100 JY | 53 | ug/kg | 8.3 |
| Benzo(k)fluoranthene | ~~ND~~ 3600 JY | 53 | ug/kg | 11 |
| Benzo(a)pyrene | 1600 | 53 | ug/kg | 5.3 |
| Indeno(1,2,3-cd)pyrene | 2000 | 53 | ug/kg | 5.4 |
| Dibenzo(a,h)anthracene | 470 | 53 | ug/kg | 5.8 |
| Benzo(ghi)perylene | 1900 | 53 | ug/kg | 5.2 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 74 | (27 - 110) |
| Terphenyl-d14 | 61 | (21 - 130) |
| 2-Fluorobiphenyl | 66 | (28 - 108) |
| 2-Fluorophenol | 69 | (28 - 107) |
| Phenol-d5 | 72 | (30 - 112) |
| 2,4,6-Tribromophenol | 75 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A3-24 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-041 | Work Order #...: | LXGRP1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/30/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0096021 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/06/10 | | |
| Prep Batch #...: | 0096045 | Analysis Time..: | 22:26 | | |
| Dilution Factor: | 19.74 | Initial Wgt/Vol: | 15.2 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 48 | Analyst ID.....: | 430261 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 2600 D1 | 1300 | ug/kg | 110 |
| Naphthalene | 700 | 260 | ug/kg | 22 |
| Acenaphthylene | 10000 | 260 | ug/kg | 29 |
| Acenaphthene | 420 | 260 | ug/kg | 24 |
| Fluorene | 570 | 260 | ug/kg | 33 |
| Phenanthrene | 3200 | 260 | ug/kg | 40 |
| Anthracene | 7800 | 260 | ug/kg | 25 |
| Fluoranthene | 25000 | 260 | ug/kg | 27 |
| Pyrene | 15000 | 260 | ug/kg | 26 |
| Benzo(a)anthracene | 17000 | 260 | ug/kg | 32 |
| Chrysene | 19000 | 260 | ug/kg | 30 |
| Benzo(b)fluoranthene | 45000 | 260 | ug/kg | 40 |
| Benzo(k)fluoranthene | 25000 | 260 | ug/kg | 51 |
| Benzo(a)pyrene | 28000 | 260 | ug/kg | 25 |
| Indeno(1,2,3-cd)pyrene | 26000 | 260 | ug/kg | 26 |
| Dibenzo(a,h)anthracene | ND | 260 | ug/kg | 28 |
| Benzo(ghi)perylene | 24000 | 260 | ug/kg | 25 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A4-1 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-058 | Work Order #...: | LXGTL1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 10:50 | Date Received..: | 04/02/10 10:15 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 18:37 | | |
| Dilution Factor: | 5 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 33 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 250 | ug/kg | 22 |
| Naphthalene | ND | 50 | ug/kg | 4.3 |
| **Acenaphthylene** | **35 J** | **50** | **ug/kg** | **5.7** |
| **Acenaphthene** | **20 J** | **50** | **ug/kg** | **4.8** |
| **Fluorene** | **14 J** | **50** | **ug/kg** | **6.6** |
| **Phenanthrene** | **190** | **50** | **ug/kg** | **7.9** |
| **Anthracene** | **62** | **50** | **ug/kg** | **4.9** |
| **Fluoranthene** | **560** | **50** | **ug/kg** | **5.3** |
| **Pyrene** | **360** | **50** | **ug/kg** | **5.0** |
| **Benzo(a)anthracene** | **240** | **50** | **ug/kg** | **6.2** |
| **Chrysene** | **310** | **50** | **ug/kg** | **5.9** |
| **Benzo(b)fluoranthene** | ~~540~~ 420 | **50** | **ug/kg** | **7.8** |
| Benzo(k)fluoranthene | ~~ND~~ 140 | 50 | ug/kg | 10 |
| **Benzo(a)pyrene** | **260** | **50** | **ug/kg** | **5.0** |
| **Indeno(1,2,3-cd)pyrene** | **240** | **50** | **ug/kg** | **5.1** |
| **Dibenzo(a,h)anthracene** | **58** | **50** | **ug/kg** | **5.5** |
| **Benzo(ghi)perylene** | **240** | **50** | **ug/kg** | **4.9** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 61 | (27 - 110) |
| Terphenyl-d14 | 50 | (21 - 130) |
| 2-Fluorobiphenyl | 56 | (28 - 108) |
| 2-Fluorophenol | 57 | (28 - 107) |
| Phenol-d5 | 62 | (30 - 112) |
| 2,4,6-Tribromophenol | 58 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A4-2 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-059 | Work Order #...: | LXGTM1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 10:55 | Date Received..: | 04/02/10 10:15 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 19:01 | | |
| Dilution Factor: | 0.97 | Initial Wgt/Vol: | 15.4 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 29 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 45 | ug/kg | 4.1 |
| **Naphthalene** | **56** | **9.2** | **ug/kg** | **0.79** |
| **Acenaphthylene** | **35** | **9.2** | **ug/kg** | **1.0** |
| **Acenaphthene** | **10** | **9.2** | **ug/kg** | **0.88** |
| **Fluorene** | **7.6 J** | **9.2** | **ug/kg** | **1.2** |
| **Phenanthrene** | **150** | **9.2** | **ug/kg** | **1.5** |
| **Anthracene** | **36** | **9.2** | **ug/kg** | **0.89** |
| **Fluoranthene** | **220** | **9.2** | **ug/kg** | **0.98** |
| **Pyrene** | **120** | **9.2** | **ug/kg** | **0.92** |
| **Benzo(a)anthracene** | **77** | **9.2** | **ug/kg** | **1.1** |
| **Chrysene** | **110** | **9.2** | **ug/kg** | **1.1** |
| **Benzo(b)fluoranthene** | ~~160~~ 140 | **9.2** | **ug/kg** | **1.4** |
| Benzo(k)fluoranthene | ~~ND~~ 36 | 9.2 | ug/kg | 1.8 |
| **Benzo(a)pyrene** | **85** | **9.2** | **ug/kg** | **0.91** |
| **Indeno(1,2,3-cd)pyrene** | **84** | **9.2** | **ug/kg** | **0.94** |
| **Dibenzo(a,h)anthracene** | **22** | **9.2** | **ug/kg** | **1.0** |
| **Benzo(ghi)perylene** | **92** | **9.2** | **ug/kg** | **0.91** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 81 | (27 - 110) |
| Terphenyl-d14 | 64 | (21 - 130) |
| 2-Fluorobiphenyl | 74 | (28 - 108) |
| 2-Fluorophenol | 71 | (28 - 107) |
| Phenol-d5 | 72 | (30 - 112) |
| 2,4,6-Tribromophenol | 84 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A4-3 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-060 | Work Order #...: | LXGTN1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 11:00 | Date Received..: | 04/02/10 10:15 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 19:25 | | |
| Dilution Factor: | 1 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 28 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 46 | ug/kg | 4.1 |
| Naphthalene | ND | 9.3 | ug/kg | 0.79 |
| **Acenaphthylene** | **3.2 J** | **9.3** | **ug/kg** | **1.1** |
| Acenaphthene | ND | 9.3 | ug/kg | 0.89 |
| Fluorene | ND | 9.3 | ug/kg | 1.2 |
| **Phenanthrene** | **15** | **9.3** | **ug/kg** | **1.5** |
| **Anthracene** | **4.3 J** | **9.3** | **ug/kg** | **0.90** |
| **Fluoranthene** | **20** | **9.3** | **ug/kg** | **0.99** |
| **Pyrene** | **12** | **9.3** | **ug/kg** | **0.93** |
| **Benzo(a)anthracene** | **11** | **9.3** | **ug/kg** | **1.2** |
| **Chrysene** | **13** | **9.3** | **ug/kg** | **1.1** |
| **Benzo(b)fluoranthene** | **16** | **9.3** | **ug/kg** | **1.4** |
| **Benzo(k)fluoranthene** | **6.2 J** | **9.3** | **ug/kg** | **1.9** |
| **Benzo(a)pyrene** | **11** | **9.3** | **ug/kg** | **0.92** |
| **Indeno(1,2,3-cd)pyrene** | **9.3** | **9.3** | **ug/kg** | **0.95** |
| **Dibenzo(a,h)anthracene** | **2.1 J** | **9.3** | **ug/kg** | **1.0** |
| **Benzo(ghi)perylene** | **12** | **9.3** | **ug/kg** | **0.92** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 56 | (27 - 110) |
| Terphenyl-d14 | 41 | (21 - 130) |
| 2-Fluorobiphenyl | 49 | (28 - 108) |
| 2-Fluorophenol | 50 | (28 - 107) |
| Phenol-d5 | 53 | (30 - 112) |
| 2,4,6-Tribromophenol | 57 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A4-4 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-057 | Work Order #...: | LXGTK1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 10:20 | Date Received..: | 04/02/10 10:15 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 18:12 | | |
| Dilution Factor: | 4.9 | Initial Wgt/Vol: | 15.3 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 48 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 310 | ug/kg | 28 |
| Naphthalene | ND | 63 | ug/kg | 5.4 |
| **Acenaphthylene** | **45 J** | **63** | **ug/kg** | **7.2** |
| **Acenaphthene** | **22 J** | **63** | **ug/kg** | **6.1** |
| **Fluorene** | **25 J** | **63** | **ug/kg** | **8.3** |
| **Phenanthrene** | **170** | **63** | **ug/kg** | **10** |
| **Anthracene** | **60 J** | **63** | **ug/kg** | **6.2** |
| **Fluoranthene** | **560** | **63** | **ug/kg** | **6.7** |
| **Pyrene** | **370** | **63** | **ug/kg** | **6.4** |
| **Benzo(a)anthracene** | **220** | **63** | **ug/kg** | **7.9** |
| **Chrysene** | **370** | **63** | **ug/kg** | **7.5** |
| **Benzo(b)fluoranthene** | ~~660~~ 430 | 63 | **ug/kg** | **9.9** |
| Benzo(k)fluoranthene | ~~ND~~ 260 | 63 | ug/kg | 13 |
| **Benzo(a)pyrene** | **300** | **63** | **ug/kg** | **6.3** |
| **Indeno(1,2,3-cd)pyrene** | **280** | **63** | **ug/kg** | **6.5** |
| **Dibenzo(a,h)anthracene** | **68** | **63** | **ug/kg** | **7.0** |
| **Benzo(ghi)perylene** | **330** | **63** | **ug/kg** | **6.3** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 44 | (27 - 110) |
| Terphenyl-d14 | 34 | (21 - 130) |
| 2-Fluorobiphenyl | 41 | (28 - 108) |
| 2-Fluorophenol | 38 | (28 - 107) |
| Phenol-d5 | 40 | (30 - 112) |
| 2,4,6-Tribromophenol | 38 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A4-5 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-055 | Work Order #...: | LXGTG1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 10:10 | Date Received..: | 04/02/10 10:15 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 17:22 | | |
| Dilution Factor: | 9.8 | Initial Wgt/Vol: | 15.3 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 33 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 490 | ug/kg | 44 |
| **Naphthalene** | **560** | **99** | **ug/kg** | **8.5** |
| **Acenaphthylene** | **580** | **99** | **ug/kg** | **11** |
| **Acenaphthene** | **240** | **99** | **ug/kg** | **9.4** |
| **Fluorene** | **230** | **99** | **ug/kg** | **13** |
| **Phenanthrene** | **2500** | **99** | **ug/kg** | **16** |
| **Anthracene** | **860** | **99** | **ug/kg** | **9.6** |
| **Fluoranthene** | **3200** | **99** | **ug/kg** | **11** |
| **Pyrene** | **1800** | **99** | **ug/kg** | **9.9** |
| **Benzo(a)anthracene** | **1100** | **99** | **ug/kg** | **12** |
| **Chrysene** | **1300** | **99** | **ug/kg** | **12** |
| **Benzo(b)fluoranthene** | **2000** JY | **99** | **ug/kg** | **15** |
| Benzo(k)fluoranthene | ~~ND~~ 1700 JY | 99 | ug/kg | 20 |
| **Benzo(a)pyrene** | **1100** | **99** | **ug/kg** | **9.8** |
| **Indeno(1,2,3-cd)pyrene** | **1100** | **99** | **ug/kg** | **10** |
| **Dibenzo(a,h)anthracene** | **190** | **99** | **ug/kg** | **11** |
| **Benzo(ghi)perylene** | **1400** | **99** | **ug/kg** | **9.8** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 79 | (27 - 110) |
| Terphenyl-d14 | 60 | (21 - 130) |
| 2-Fluorobiphenyl | 65 | (28 - 108) |
| 2-Fluorophenol | 75 | (28 - 107) |
| Phenol-d5 | 75 | (30 - 112) |
| 2,4,6-Tribromophenol | 67 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A4-6 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-056 | Work Order #...: | LXGTJ1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 10:15 | Date Received..: | 04/02/10 10:15 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 17:47 | | |
| Dilution Factor: | 4.93 | Initial Wgt/Vol: | 15.2 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 47 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 310 | ug/kg | 28 |
| **Naphthalene** | **190** | **62** | **ug/kg** | **5.3** |
| **Acenaphthylene** | **290** | **62** | **ug/kg** | **7.1** |
| **Acenaphthene** | **54 J** | **62** | **ug/kg** | **5.9** |
| Fluorene | ND | 62 | ug/kg | 8.2 |
| **Phenanthrene** | **740** | **62** | **ug/kg** | **9.8** |
| **Anthracene** | **350** | **62** | **ug/kg** | **6.1** |
| **Fluoranthene** | **1400** | **62** | **ug/kg** | **6.6** |
| **Pyrene** | **890** | **62** | **ug/kg** | **6.3** |
| **Benzo(a)anthracene** | **760** | **62** | **ug/kg** | **7.8** |
| **Chrysene** | **1100** | **62** | **ug/kg** | **7.4** |
| **Benzo(b)fluoranthene** | ~~2000~~ 1600 | **62** | **ug/kg** | **9.7** |
| Benzo(k)fluoranthene | ~~ND~~ 500 | 62 | ug/kg | 13 |
| **Benzo(a)pyrene** | **800** | **62** | **ug/kg** | **6.2** |
| **Indeno(1,2,3-cd)pyrene** | **800** | **62** | **ug/kg** | **6.4** |
| **Dibenzo(a,h)anthracene** | **220** | **62** | **ug/kg** | **6.9** |
| **Benzo(ghi)perylene** | **770** | **62** | **ug/kg** | **6.2** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 51 | (27 - 110) |
| Terphenyl-d14 | 41 | (21 - 130) |
| 2-Fluorobiphenyl | 43 | (28 - 108) |
| 2-Fluorophenol | 44 | (28 - 107) |
| Phenol-d5 | 46 | (30 - 112) |
| 2,4,6-Tribromophenol | 48 | (21 - 116) |

*NOTE(S):*

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A4-7 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-047 | Work Order #...: | LXGR31AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 08:30 | Date Received..: | 04/02/10 10:15 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 14:01 | | |
| Dilution Factor: | 0.98 | Initial Wgt/Vol: | 15.3 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 35 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 50 | ug/kg | 4.5 |
| Naphthalene | 16 | 10 | ug/kg | 0.87 |
| Acenaphthylene | 11 | 10 | ug/kg | 1.2 |
| Acenaphthene | 8.0 J | 10 | ug/kg | 0.97 |
| Fluorene | 7.9 J | 10 | ug/kg | 1.3 |
| Phenanthrene | 51 | 10 | ug/kg | 1.6 |
| Anthracene | 13 | 10 | ug/kg | 0.99 |
| Fluoranthene | 87 | 10 | ug/kg | 1.1 |
| Pyrene | 69 | 10 | ug/kg | 1.0 |
| Benzo(a)anthracene | 46 | 10 | ug/kg | 1.3 |
| Chrysene | 64 | 10 | ug/kg | 1.2 |
| Benzo(b)fluoranthene | 100 JY | 10 | ug/kg | 1.6 |
| Benzo(k)fluoranthene | ~~ND~~ 88 JY | 10 | ug/kg | 2.0 |
| Benzo(a)pyrene | 47 | 10 | ug/kg | 1.0 |
| Indeno(1,2,3-cd)pyrene | 37 | 10 | ug/kg | 1.0 |
| Dibenzo(a,h)anthracene | 8.0 J | 10 | ug/kg | 1.1 |
| Benzo(ghi)perylene | 39 | 10 | ug/kg | 1.0 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 70 | (27 - 110) |
| Terphenyl-d14 | 55 | (21 - 130) |
| 2-Fluorobiphenyl | 62 | (28 - 108) |
| 2-Fluorophenol | 58 | (28 - 107) |
| Phenol-d5 | 57 | (30 - 112) |
| 2,4,6-Tribromophenol | 59 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A4-8 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-048 | Work Order #...: | LXGR51AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 08:35 | Date Received..: | 04/02/10 10:15 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 14:26 | | |
| Dilution Factor: | 0.99 | Initial Wgt/Vol: | 15.2 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 30 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 47 | ug/kg | 4.2 |
| Naphthalene | 23 | 9.5 | ug/kg | 0.81 |
| Acenaphthylene | 35 | 9.5 | ug/kg | 1.1 |
| Acenaphthene | 8.9 J | 9.5 | ug/kg | 0.91 |
| Fluorene | 6.0 J | 9.5 | ug/kg | 1.2 |
| Phenanthrene | 110 | 9.5 | ug/kg | 1.5 |
| Anthracene | 38 | 9.5 | ug/kg | 0.92 |
| Fluoranthene | 260 | 9.5 | ug/kg | 1.0 |
| Pyrene | 170 | 9.5 | ug/kg | 0.95 |
| Benzo(a)anthracene | 110 | 9.5 | ug/kg | 1.2 |
| Chrysene | 180 | 9.5 | ug/kg | 1.1 |
| Benzo(b)fluoranthene | 300 JY | 9.5 | ug/kg | 1.5 |
| Benzo(k)fluoranthene | ~~ND~~ 260 JY | 9.5 | ug/kg | 1.9 |
| Benzo(a)pyrene | 130 | 9.5 | ug/kg | 0.94 |
| Indeno(1,2,3-cd)pyrene | 130 | 9.5 | ug/kg | 0.97 |
| Dibenzo(a,h)anthracene | 30 | 9.5 | ug/kg | 1.0 |
| Benzo(ghi)perylene | 140 | 9.5 | ug/kg | 0.94 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 71 | (27 - 110) |
| Terphenyl-d14 | 65 | (21 - 130) |
| 2-Fluorobiphenyl | 65 | (28 - 108) |
| 2-Fluorophenol | 64 | (28 - 107) |
| Phenol-d5 | 69 | (30 - 112) |
| 2,4,6-Tribromophenol | 82 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: FIELD DUPLICATE #6

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-049 | Work Order #...: | LXGR71AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 | Date Received..: | 04/02/10 10:15 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 14:50 | | |
| Dilution Factor: | 2 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 32 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 97 | ug/kg | 8.8 |
| Naphthalene | 11 J | 20 | ug/kg | 1.7 |
| Acenaphthylene | 20 | 20 | ug/kg | 2.2 |
| Acenaphthene | ND | 20 | ug/kg | 1.9 |
| Fluorene | 6.6 J | 20 | ug/kg | 2.6 |
| Phenanthrene | 87 | 20 | ug/kg | 3.1 |
| Anthracene | 26 | 20 | ug/kg | 1.9 |
| Fluoranthene | 230 | 20 | ug/kg | 2.1 |
| Pyrene | 140 | 20 | ug/kg | 2.0 |
| Benzo(a)anthracene | 81 | 20 | ug/kg | 2.5 |
| Chrysene | 160 | 20 | ug/kg | 2.3 |
| Benzo(b)fluoranthene | 250 JY | 20 | ug/kg | 3.1 |
| Benzo(k)fluoranthene | ~~ND~~ 220 JY | 20 | ug/kg | 4.0 |
| Benzo(a)pyrene | 110 | 20 | ug/kg | 2.0 |
| Indeno(1,2,3-cd)pyrene | 120 | 20 | ug/kg | 2.0 |
| Dibenzo(a,h)anthracene | 29 | 20 | ug/kg | 2.2 |
| Benzo(ghi)perylene | 120 | 20 | ug/kg | 2.0 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 56 | (27 - 110) |
| Terphenyl-d14 | 50 | (21 - 130) |
| 2-Fluorobiphenyl | 51 | (28 - 108) |
| 2-Fluorophenol | 49 | (28 - 107) |
| Phenol-d5 | 54 | (30 - 112) |
| 2,4,6-Tribromophenol | 65 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A4-9 (0-6)

GC/MS Semivolatiles

| | | |
|---|---|---|
| Lot-Sample #...: C0D020489-050 | Work Order #...: LXGR81AC | Matrix.....: SOLID |
| Date Sampled...: 03/31/10 | Date Received..: 04/02/10 | MS Run #.....: 0096022 |
| Prep Date.....: 04/06/10 | Analysis Date..: 04/07/10 | |
| Prep Batch #...: 0096048 | Analysis Time..: 15:16 | |
| Dilution Factor: 0.99 | Initial Wgt/Vol: 15.1 g | Final Wgt/Vol..: 0.5 mL |
| % Moisture.....: 36 | Analyst ID.....: 003200 | Instrument ID..: 731 |
| | Method.....: SW846 8270C | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 51 | ug/kg | 4.6 |
| Naphthalene | ND | 10 | ug/kg | 0.89 |
| Acenaphthylene | 4.6 J | 10 | ug/kg | 1.2 |
| Acenaphthene | ND | 10 | ug/kg | 0.99 |
| Fluorene | ND | 10 | ug/kg | 1.4 |
| Phenanthrene | 15 | 10 | ug/kg | 1.6 |
| Anthracene | 4.3 J | 10 | ug/kg | 1.0 |
| Fluoranthene | 25 | 10 | ug/kg | 1.1 |
| Pyrene | 16 | 10 | ug/kg | 1.0 |
| Benzo(a)anthracene | 9.8 J | 10 | ug/kg | 1.3 |
| Chrysene | 17 | 10 | ug/kg | 1.2 |
| Benzo(b)fluoranthene | 27 | 10 | ug/kg | 1.6 |
| Benzo(k)fluoranthene | 8.9 J | 10 | ug/kg | 2.1 |
| Benzo(a)pyrene | 14 | 10 | ug/kg | 1.0 |
| Indeno(1,2,3-cd)pyrene | 14 | 10 | ug/kg | 1.1 |
| Dibenzo(a,h)anthracene | ND | 10 | ug/kg | 1.1 |
| Benzo(ghi)perylene | 16 | 10 | ug/kg | 1.0 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 58 | (27 - 110) |
| Terphenyl-d14 | 46 | (21 - 130) |
| 2-Fluorobiphenyl | 49 | (28 - 108) |
| 2-Fluorophenol | 53 | (28 - 107) |
| Phenol-d5 | 55 | (30 - 112) |
| 2,4,6-Tribromophenol | 68 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A4-10 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-051 | **Work Order #...:** | LXGR91AC | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/31/10 | **Date Received..:** | 04/02/10 | **MS Run #.....:** | 0096022 |
| **Prep Date.....:** | 04/06/10 | **Analysis Date..:** | 04/07/10 | | |
| **Prep Batch #...:** | 0096048 | **Analysis Time..:** | 15:41 | | |
| **Dilution Factor:** | 0.99 | **Initial Wgt/Vol:** | 15.1 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 24 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 731 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 43 | ug/kg | 3.9 |
| Naphthalene | ND | 8.8 | ug/kg | 0.75 |
| Acenaphthylene | ND | 8.8 | ug/kg | 1.0 |
| Acenaphthene | ND | 8.8 | ug/kg | 0.84 |
| Fluorene | ND | 8.8 | ug/kg | 1.2 |
| **Phenanthrene** | **7.6 J** | **8.8** | **ug/kg** | **1.4** |
| Anthracene | ND | 8.8 | ug/kg | 0.86 |
| **Fluoranthene** | **6.6 J** | **8.8** | **ug/kg** | **0.94** |
| **Pyrene** | **5.2 J** | **8.8** | **ug/kg** | **0.88** |
| Benzo(a)anthracene | ND | 8.8 | ug/kg | 1.1 |
| Chrysene | ND | 8.8 | ug/kg | 1.0 |
| **Benzo(b)fluoranthene** | **3.5 J** | **8.8** | **ug/kg** | **1.4** |
| Benzo(k)fluoranthene | ND | 8.8 | ug/kg | 1.8 |
| **Benzo(a)pyrene** | **2.7 J** | **8.8** | **ug/kg** | **0.88** |
| Indeno(1,2,3-cd)pyrene | ND | 8.8 | ug/kg | 0.90 |
| Dibenzo(a,h)anthracene | ND | 8.8 | ug/kg | 0.97 |
| Benzo(ghi)perylene | ND | 8.8 | ug/kg | 0.87 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 59 | (27 - 110) |
| Terphenyl-d14 | 42 | (21 - 130) |
| 2-Fluorobiphenyl | 48 | (28 - 108) |
| 2-Fluorophenol | 50 | (28 - 107) |
| Phenol-d5 | 52 | (30 - 112) |
| 2,4,6-Tribromophenol | 48 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A5-6 (0-6)

GC/MS Semivolatiles

Lot-Sample #...: C0D020489-014
Date Sampled...: 03/30/10
Prep Date.....: 04/05/10
Prep Batch #...: 0095430
Dilution Factor: 10
% Moisture.....: 42

Work Order #...: LXGQF1AC
Date Received..: 04/02/10
Analysis Date..: 04/06/10
Analysis Time..: 18:46
Initial Wgt/Vol: 15 g
Analyst ID.....: 003200
Method.....: SW846 8270C

Matrix.....: SOLID
MS Run #.....: 0095277

Final Wgt/Vol..: 0.5 mL
Instrument ID..: 733

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 400 J | 570 | ug/kg | 52 |
| Naphthalene | 89 J | 120 | ug/kg | 10 |
| Acenaphthylene | 1800 | 120 | ug/kg | 13 |
| Acenaphthene | 130 | 120 | ug/kg | 11 |
| Fluorene | 200 | 120 | ug/kg | 15 |
| Phenanthrene | 350 | 120 | ug/kg | 18 |
| Anthracene | 2200 | 120 | ug/kg | 11 |
| Fluoranthene | 1500 | 120 | ug/kg | 12 |
| Pyrene | 1700 | 120 | ug/kg | 12 |
| Benzo(a)anthracene | 1200 | 120 | ug/kg | 15 |
| Chrysene | 1700 | 120 | ug/kg | 14 |
| Benzo(b)fluoranthene | 3300 | 120 | ug/kg | 18 |
| Benzo(k)fluoranthene | 1500 | 120 | ug/kg | 23 |
| Benzo(a)pyrene | 2300 | 120 | ug/kg | 12 |
| Indeno(1,2,3-cd)pyrene | 2400 | 120 | ug/kg | 12 |
| Dibenzo(a,h)anthracene | 670 | 120 | ug/kg | 13 |
| Benzo(ghi)perylene | 2900 | 120 | ug/kg | 12 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 68 | (27 - 110) |
| Terphenyl-d14 | 70 | (21 - 130) |
| 2-Fluorobiphenyl | 75 | (28 - 108) |
| 2-Fluorophenol | 63 | (28 - 107) |
| Phenol-d5 | 64 | (30 - 112) |
| 2,4,6-Tribromophenol | 80 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: FIELD DUPLICATE #3

GC/MS Semivolatiles

| | | | |
|---|---|---|---|
| Lot-Sample #...: C0D020489-015 | Work Order #...: LXGQG1AC | Matrix.....: SOLID | |
| Date Sampled...: 03/30/10 | Date Received..: 04/02/10 10:15 | MS Run #.....: 0095277 | |
| Prep Date.....: 04/05/10 | Analysis Date..: 04/06/10 | | |
| Prep Batch #...: 0095430 | Analysis Time..: 19:09 | | |
| Dilution Factor: 10 | Initial Wgt/Vol: 15 g | Final Wgt/Vol..: 0.5 mL | |
| % Moisture.....: 45 | Analyst ID.....: 003200 | Instrument ID..: 733 | |
| | Method.....: SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 530 J | 600 | ug/kg | 54 |
| Naphthalene | 140 | 120 | ug/kg | 10 |
| Acenaphthylene | 2600 | 120 | ug/kg | 14 |
| Acenaphthene | 180 | 120 | ug/kg | 12 |
| Fluorene | 270 | 120 | ug/kg | 16 |
| Phenanthrene | 500 | 120 | ug/kg | 19 |
| Anthracene | 3000 | 120 | ug/kg | 12 |
| Fluoranthene | 2200 | 120 | ug/kg | 13 |
| Pyrene | 2500 | 120 | ug/kg | 12 |
| Benzo(a)anthracene | 1700 | 120 | ug/kg | 15 |
| Chrysene | 3000 | 120 | ug/kg | 14 |
| Benzo(b)fluoranthene | 5500 | 120 | ug/kg | 19 |
| Benzo(k)fluoranthene | 1900 | 120 | ug/kg | 25 |
| Benzo(a)pyrene | 3600 | 120 | ug/kg | 12 |
| Indeno(1,2,3-cd)pyrene | 3600 | 120 | ug/kg | 13 |
| Dibenzo(a,h)anthracene | 1100 | 120 | ug/kg | 14 |
| Benzo(ghi)perylene | 4200 | 120 | ug/kg | 12 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 68 | (27 - 110) |
| Terphenyl-d14 | 73 | (21 - 130) |
| 2-Fluorobiphenyl | 79 | (28 - 108) |
| 2-Fluorophenol | 64 | (28 - 107) |
| Phenol-d5 | 66 | (30 - 112) |
| 2,4,6-Tribromophenol | 80 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A5-7 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-016 | Work Order #...: | LXGQH1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/30/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0095277 |
| Prep Date.....: | 04/05/10 | Analysis Date..: | 04/06/10 | | |
| Prep Batch #...: | 0095430 | Analysis Time..: | 19:32 | | |
| Dilution Factor: | 20 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 39 | Analyst ID.....: | 003200 | Instrument ID..: | 733 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 2100 D5 | 1100 | ug/kg | 97 |
| Naphthalene | 680 | 220 | ug/kg | 19 |
| Acenaphthylene | 4600 | 220 | ug/kg | 25 |
| Acenaphthene | 400 | 220 | ug/kg | 21 |
| Fluorene | 530 | 220 | ug/kg | 29 |
| Phenanthrene | 2500 | 220 | ug/kg | 35 |
| Anthracene | 5600 | 220 | ug/kg | 21 |
| Fluoranthene | 4500 | 220 | ug/kg | 23 |
| Pyrene | 3400 | 220 | ug/kg | 22 |
| Benzo(a)anthracene | 2100 | 220 | ug/kg | 27 |
| Chrysene | 3700 | 220 | ug/kg | 26 |
| Benzo(b)fluoranthene | 9000 | 220 | ug/kg | 34 |
| Benzo(k)fluoranthene | 2000 | 220 | ug/kg | 44 |
| Benzo(a)pyrene | 5600 | 220 | ug/kg | 22 |
| Indeno(1,2,3-cd)pyrene | 7500 | 220 | ug/kg | 22 |
| Dibenzo(a,h)anthracene | 2000 | 220 | ug/kg | 24 |
| Benzo(ghi)perylene | 8600 | 220 | ug/kg | 22 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | NC,DIL | (27 - 110) |
| Terphenyl-d14 | NC,DIL | (21 - 130) |
| 2-Fluorobiphenyl | NC,DIL | (28 - 108) |
| 2-Fluorophenol | NC,DIL | (28 - 107) |
| Phenol-d5 | NC,DIL | (30 - 112) |
| 2,4,6-Tribromophenol | NC,DIL | (21 - 116) |

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A6-1 (0-6)

GC/MS Semivolatiles

| | | |
|---|---|---|
| Lot-Sample #...: C0D020489-042 | Work Order #...: LXGRQ1AE | Matrix.....: SOLID |
| Date Sampled...: 03/31/10 | Date Received..: 04/02/10 | MS Run #.....: 0096022 |
| Prep Date.....: 04/06/10 | Analysis Date..: 04/06/10 | |
| Prep Batch #...: 0096048 | Analysis Time..: 22:19 | |
| Dilution Factor: 1.96 | Initial Wgt/Vol: 15.3 g | Final Wgt/Vol..: 0.5 mL |
| % Moisture.....: 41 | Analyst ID.....: 003200 | Instrument ID..: 731 |
| | Method.....: SW846 8270C | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 190 | 110 | ug/kg | 10 |
| Naphthalene | 17 J | 22 | ug/kg | 1.9 |
| Acenaphthylene | 140 | 22 | ug/kg | 2.5 |
| Acenaphthene | 9.4 J | 22 | ug/kg | 2.1 |
| Fluorene | 14 J | 22 | ug/kg | 2.9 |
| Phenanthrene | 68 | 22 | ug/kg | 3.5 |
| Anthracene | 210 | 22 | ug/kg | 2.2 |
| Fluoranthene | 190 | 22 | ug/kg | 2.4 |
| Pyrene | 180 | 22 | ug/kg | 2.3 |
| Benzo(a)anthracene | 120 | 22 | ug/kg | 2.8 |
| Chrysene | 200 | 22 | ug/kg | 2.7 |
| Benzo(b)fluoranthene | 370 | 22 | ug/kg | 3.5 |
| Benzo(k)fluoranthene | 110 | 22 | ug/kg | 4.5 |
| Benzo(a)pyrene | 180 | 22 | ug/kg | 2.2 |
| Indeno(1,2,3-cd)pyrene | 230 | 22 | ug/kg | 2.3 |
| Dibenzo(a,h)anthracene | 51 | 22 | ug/kg | 2.5 |
| Benzo(ghi)perylene | 190 | 22 | ug/kg | 2.2 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 51 | (27 - 110) |
| Terphenyl-d14 | 42 | (21 - 130) |
| 2-Fluorobiphenyl | 48 | (28 - 108) |
| 2-Fluorophenol | 46 | (28 - 107) |
| Phenol-d5 | 47 | (30 - 112) |
| 2,4,6-Tribromophenol | 48 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A6-2 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-043 | Work Order #...: | LXGRV1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/06/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 23:27 | | |
| Dilution Factor: | 2 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 34 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | 130 | 100 | ug/kg | 9.1 |
| Naphthalene | 8.1 J | 20 | ug/kg | 1.8 |
| Acenaphthylene | 180 | 20 | ug/kg | 2.3 |
| Acenaphthene | 9.4 J | 20 | ug/kg | 2.0 |
| Fluorene | 20 | 20 | ug/kg | 2.7 |
| Phenanthrene | 67 | 20 | ug/kg | 3.2 |
| Anthracene | 190 | 20 | ug/kg | 2.0 |
| Fluoranthene | 290 | 20 | ug/kg | 2.2 |
| Pyrene | 340 | 20 | ug/kg | 2.1 |
| Benzo(a)anthracene | 410 | 20 | ug/kg | 2.6 |
| Chrysene | 580 | 20 | ug/kg | 2.4 |
| Benzo(b)fluoranthene | 1100 | 20 | ug/kg | 3.2 |
| Benzo(k)fluoranthene | 350 | 20 | ug/kg | 4.1 |
| Benzo(a)pyrene | 610 | 20 | ug/kg | 2.0 |
| Indeno(1,2,3-cd)pyrene | 400 | 20 | ug/kg | 2.1 |
| Dibenzo(a,h)anthracene | 130 | 20 | ug/kg | 2.3 |
| Benzo(ghi)perylene | 380 | 20 | ug/kg | 2.0 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 56 | (27 - 110) |
| Terphenyl-d14 | 45 | (21 - 130) |
| 2-Fluorobiphenyl | 51 | (28 - 108) |
| 2-Fluorophenol | 51 | (28 - 107) |
| Phenol-d5 | 52 | (30 - 112) |
| 2,4,6-Tribromophenol | 53 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

**ARCADIS U.S., Inc.**

**Client Sample ID: A6-3 (0-6)**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-044 | **Work Order #...:** | LXGRX1AC | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/31/10 08:15 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0096022 |
| **Prep Date.....:** | 04/06/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0096048 | **Analysis Time..:** | 23:50 | | |
| **Dilution Factor:** | 4 | **Initial Wgt/Vol:** | 15 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 42 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 731 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 230 | ug/kg | 21 |
| **Naphthalene** | **2000** | **46** | **ug/kg** | **4.0** |
| **Acenaphthylene** | **340** | **46** | **ug/kg** | **5.3** |
| **Acenaphthene** | **1200** | **46** | **ug/kg** | **4.4** |
| **Fluorene** | **990** | **46** | **ug/kg** | **6.1** |
| **Phenanthrene** | **2100** | **46** | **ug/kg** | **7.3** |
| **Anthracene** | **460** | **46** | **ug/kg** | **4.5** |
| **Fluoranthene** | **1600** | **46** | **ug/kg** | **4.9** |
| **Pyrene** | **1100** | **46** | **ug/kg** | **4.6** |
| **Benzo(a)anthracene** | **500** | **46** | **ug/kg** | **5.8** |
| **Chrysene** | **530** | **46** | **ug/kg** | **5.5** |
| **Benzo(b)fluoranthene** | **1100** JY | **46** | **ug/kg** | **7.2** |
| Benzo(k)fluoranthene | ~~ND~~ 970 JY | 46 | ug/kg | 9.3 |
| **Benzo(a)pyrene** | **560** | **46** | **ug/kg** | **4.6** |
| **Indeno(1,2,3-cd)pyrene** | **850** | **46** | **ug/kg** | **4.7** |
| **Dibenzo(a,h)anthracene** | **110** | **46** | **ug/kg** | **5.1** |
| **Benzo(ghi)perylene** | **900** | **46** | **ug/kg** | **4.6** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 89 | (27 - 110) |
| Terphenyl-d14 | 71 | (21 - 130) |
| 2-Fluorobiphenyl | 88 | (28 - 108) |
| 2-Fluorophenol | 80 | (28 - 107) |
| Phenol-d5 | 81 | (30 - 112) |
| 2,4,6-Tribromophenol | 101 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A6-4 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-045 | Work Order #...: | LXGR11AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 00:12 | | |
| Dilution Factor: | 2 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 27 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 90 | ug/kg | 8.1 |
| Naphthalene | 57 | 18 | ug/kg | 1.6 |
| Acenaphthylene | 98 | 18 | ug/kg | 2.1 |
| Acenaphthene | 19 | 18 | ug/kg | 1.7 |
| Fluorene | 21 | 18 | ug/kg | 2.4 |
| Phenanthrene | 190 | 18 | ug/kg | 2.9 |
| Anthracene | 93 | 18 | ug/kg | 1.8 |
| Fluoranthene | 340 | 18 | ug/kg | 1.9 |
| Pyrene | 230 | 18 | ug/kg | 1.8 |
| Benzo(a)anthracene | 200 | 18 | ug/kg | 2.3 |
| Chrysene | 260 | 18 | ug/kg | 2.2 |
| Benzo(b)fluoranthene | 350 | 18 | ug/kg | 2.9 |
| Benzo(k)fluoranthene | 110 | 18 | ug/kg | 3.7 |
| Benzo(a)pyrene | 220 | 18 | ug/kg | 1.8 |
| Indeno(1,2,3-cd)pyrene | 200 | 18 | ug/kg | 1.9 |
| Dibenzo(a,h)anthracene | 42 | 18 | ug/kg | 2.0 |
| Benzo(ghi)perylene | 210 | 18 | ug/kg | 1.8 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 54 | (27 - 110) |
| Terphenyl-d14 | 50 | (21 - 130) |
| 2-Fluorobiphenyl | 52 | (28 - 108) |
| 2-Fluorophenol | 47 | (28 - 107) |
| Phenol-d5 | 50 | (30 - 112) |
| 2,4,6-Tribromophenol | 66 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A6-5 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-046 | Work Order #...: | LXGR21AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 00:34 | | |
| Dilution Factor: | 0.99 | Initial Wgt/Vol: | 15.2 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 33 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 49 | ug/kg | 4.4 |
| Naphthalene | 5.4 J | 9.9 | ug/kg | 0.85 |
| Acenaphthylene | 12 | 9.9 | ug/kg | 1.1 |
| Acenaphthene | ND | 9.9 | ug/kg | 0.94 |
| Fluorene | ND | 9.9 | ug/kg | 1.3 |
| Phenanthrene | 21 | 9.9 | ug/kg | 1.6 |
| Anthracene | 11 | 9.9 | ug/kg | 0.96 |
| Fluoranthene | 45 | 9.9 | ug/kg | 1.1 |
| Pyrene | 33 | 9.9 | ug/kg | 0.99 |
| Benzo(a)anthracene | 24 | 9.9 | ug/kg | 1.2 |
| Chrysene | 32 | 9.9 | ug/kg | 1.2 |
| Benzo(b)fluoranthene | 51 | 9.9 | ug/kg | 1.5 |
| Benzo(k)fluoranthene | 13 | 9.9 | ug/kg | 2.0 |
| Benzo(a)pyrene | 30 | 9.9 | ug/kg | 0.98 |
| Indeno(1,2,3-cd)pyrene | 28 | 9.9 | ug/kg | 1.0 |
| Dibenzo(a,h)anthracene | 7.0 J | 9.9 | ug/kg | 1.1 |
| Benzo(ghi)perylene | 29 | 9.9 | ug/kg | 0.98 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 73 | (27 - 110) |
| Terphenyl-d14 | 57 | (21 - 130) |
| 2-Fluorobiphenyl | 66 | (28 - 108) |
| 2-Fluorophenol | 66 | (28 - 107) |
| Phenol-d5 | 65 | (30 - 112) |
| 2,4,6-Tribromophenol | 79 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

ARCADIS U.S., Inc.

Client Sample ID: A6-6 (0-6)

GC/MS Semivolatiles

| | | |
|---|---|---|
| Lot-Sample #...: C0D020489-052 | Work Order #...: LXGTA1AC | Matrix.....: SOLID |
| Date Sampled...: 03/31/10 | Date Received..: 04/02/10 | MS Run #.....: 0096022 |
| Prep Date.....: 04/06/10 | Analysis Date..: 04/07/10 | |
| Prep Batch #...: 0096048 | Analysis Time..: 16:06 | |
| Dilution Factor: 0.97 | Initial Wgt/Vol: 15.4 g | Final Wgt/Vol..: 0.5 mL |
| % Moisture.....: 40 | Analyst ID.....: 003200 | Instrument ID..: 731 |
| | Method.....: SW846 8270C | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 54 | ug/kg | 4.9 |
| Naphthalene | 28 | 11 | ug/kg | 0.94 |
| Acenaphthylene | 79 | 11 | ug/kg | 1.2 |
| Acenaphthene | 11 | 11 | ug/kg | 1.0 |
| Fluorene | 17 | 11 | ug/kg | 1.4 |
| Phenanthrene | 59 | 11 | ug/kg | 1.7 |
| Anthracene | 71 | 11 | ug/kg | 1.1 |
| Fluoranthene | 110 | 11 | ug/kg | 1.2 |
| Pyrene | 81 | 11 | ug/kg | 1.1 |
| Benzo(a)anthracene | 79 | 11 | ug/kg | 1.4 |
| Chrysene | 130 | 11 | ug/kg | 1.3 |
| Benzo(b)fluoranthene | 270 | 11 | ug/kg | 1.7 |
| Benzo(k)fluoranthene | 81 | 11 | ug/kg | 2.2 |
| Benzo(a)pyrene | 160 | 11 | ug/kg | 1.1 |
| Indeno(1,2,3-cd)pyrene | 150 | 11 | ug/kg | 1.1 |
| Dibenzo(a,h)anthracene | 42 | 11 | ug/kg | 1.2 |
| Benzo(ghi)perylene | 150 | 11 | ug/kg | 1.1 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 62 | (27 - 110) |
| Terphenyl-d14 | 53 | (21 - 130) |
| 2-Fluorobiphenyl | 56 | (28 - 108) |
| 2-Fluorophenol | 56 | (28 - 107) |
| Phenol-d5 | 60 | (30 - 112) |
| 2,4,6-Tribromophenol | 74 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A6-7 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-053 | Work Order #...: | LXGTC1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 16:31 | | |
| Dilution Factor: | 1 | Initial Wgt/Vol: | 15 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 30 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 47 | ug/kg | 4.3 |
| Naphthalene | 43 | 9.6 | ug/kg | 0.83 |
| Acenaphthylene | 53 | 9.6 | ug/kg | 1.1 |
| Acenaphthene | 11 | 9.6 | ug/kg | 0.92 |
| Fluorene | 12 | 9.6 | ug/kg | 1.3 |
| Phenanthrene | 120 | 9.6 | ug/kg | 1.5 |
| Anthracene | 51 | 9.6 | ug/kg | 0.94 |
| Fluoranthene | 150 | 9.6 | ug/kg | 1.0 |
| Pyrene | 87 | 9.6 | ug/kg | 0.97 |
| Benzo(a)anthracene | 89 | 9.6 | ug/kg | 1.2 |
| Chrysene | 100 | 9.6 | ug/kg | 1.1 |
| Benzo(b)fluoranthene | 200 | 9.6 | ug/kg | 1.5 |
| Benzo(k)fluoranthene | 71 | 9.6 | ug/kg | 1.9 |
| Benzo(a)pyrene | 120 | 9.6 | ug/kg | 0.96 |
| Indeno(1,2,3-cd)pyrene | 110 | 9.6 | ug/kg | 0.99 |
| Dibenzo(a,h)anthracene | 28 | 9.6 | ug/kg | 1.1 |
| Benzo(ghi)perylene | 110 | 9.6 | ug/kg | 0.95 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 64 | (27 - 110) |
| Terphenyl-d14 | 47 | (21 - 130) |
| 2-Fluorobiphenyl | 56 | (28 - 108) |
| 2-Fluorophenol | 55 | (28 - 107) |
| Phenol-d5 | 57 | (30 - 112) |
| 2,4,6-Tribromophenol | 43 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A6-8 (0-6)

GC/MS Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | C0D020489-054 | Work Order #...: | LXGTE1AC | Matrix.....: | SOLID |
| Date Sampled...: | 03/31/10 | Date Received..: | 04/02/10 | MS Run #.....: | 0096022 |
| Prep Date.....: | 04/06/10 | Analysis Date..: | 04/07/10 | | |
| Prep Batch #...: | 0096048 | Analysis Time..: | 16:56 | | |
| Dilution Factor: | 0.99 | Initial Wgt/Vol: | 15.1 g | Final Wgt/Vol..: | 0.5 mL |
| % Moisture.....: | 21 | Analyst ID.....: | 003200 | Instrument ID..: | 731 |
| | | Method.....: | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 41 | ug/kg | 3.7 |
| Naphthalene | ND | 8.4 | ug/kg | 0.72 |
| Acenaphthylene | ND | 8.4 | ug/kg | 0.95 |
| Acenaphthene | ND | 8.4 | ug/kg | 0.80 |
| Fluorene | ND | 8.4 | ug/kg | 1.1 |
| **Phenanthrene** | **6.8 J** | **8.4** | **ug/kg** | **1.3** |
| **Anthracene** | **1.3 J** | **8.4** | **ug/kg** | **0.81** |
| **Fluoranthene** | **5.5 J** | **8.4** | **ug/kg** | **0.89** |
| **Pyrene** | **3.8 J** | **8.4** | **ug/kg** | **0.84** |
| Benzo(a)anthracene | ND | 8.4 | ug/kg | 1.0 |
| Chrysene | ND | 8.4 | ug/kg | 0.99 |
| **Benzo(b)fluoranthene** | **2.4 J** | **8.4** | **ug/kg** | **1.3** |
| **Benzo(k)fluoranthene** | **3.5 J** | **8.4** | **ug/kg** | **1.7** |
| Benzo(a)pyrene | ND | 8.4 | ug/kg | 0.83 |
| Indeno(1,2,3-cd)pyrene | ND | 8.4 | ug/kg | 0.86 |
| Dibenzo(a,h)anthracene | ND | 8.4 | ug/kg | 0.93 |
| Benzo(ghi)perylene | ND | 8.4 | ug/kg | 0.83 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 55 | (27 - 110) |
| Terphenyl-d14 | 41 | (21 - 130) |
| 2-Fluorobiphenyl | 45 | (28 - 108) |
| 2-Fluorophenol | 46 | (28 - 107) |
| Phenol-d5 | 47 | (30 - 112) |
| 2,4,6-Tribromophenol | 49 | (21 - 116) |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

**ARCADIS U.S., Inc.**

**Client Sample ID: NPL (0-6)**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-013 | **Work Order #...:** | LXGQD1AC | **Matrix.....:** | SOLID |
| **Date Sampled...:** | 03/29/10 16:00 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095277 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095430 | **Analysis Time..:** | 18:23 | | |
| **Dilution Factor:** | 2 | **Initial Wgt/Vol:** | 15 g | **Final Wgt/Vol..:** | 0.5 mL |
| **% Moisture.....:** | 36 | **Analyst ID.....:** | 003200 | **Instrument ID..:** | 733 |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| **Pentachlorophenol** | **16 J** | **100** | **ug/kg** | **9.4** |
| **Naphthalene** | **43** | **21** | **ug/kg** | **1.8** |
| **Acenaphthylene** | **39** | **21** | **ug/kg** | **2.4** |
| **Acenaphthene** | **11 J** | **21** | **ug/kg** | **2.0** |
| **Fluorene** | **8.6 J** | **21** | **ug/kg** | **2.8** |
| **Phenanthrene** | **190** | **21** | **ug/kg** | **3.3** |
| **Anthracene** | **58** | **21** | **ug/kg** | **2.1** |
| **Fluoranthene** | **290** | **21** | **ug/kg** | **2.2** |
| **Pyrene** | **240** | **21** | **ug/kg** | **2.1** |
| **Benzo(a)anthracene** | **140** | **21** | **ug/kg** | **2.6** |
| **Chrysene** | **150** | **21** | **ug/kg** | **2.5** |
| **Benzo(b)fluoranthene** | **160** | **21** | **ug/kg** | **3.3** |
| **Benzo(k)fluoranthene** | **69** | **21** | **ug/kg** | **4.2** |
| **Benzo(a)pyrene** | **140** | **21** | **ug/kg** | **2.1** |
| **Indeno(1,2,3-cd)pyrene** | **94** | **21** | **ug/kg** | **2.2** |
| **Dibenzo(a,h)anthracene** | **15 J** | **21** | **ug/kg** | **2.3** |
| **Benzo(ghi)perylene** | **120** | **21** | **ug/kg** | **2.1** |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 71 | (27 - 110) |
| Terphenyl-d14 | 68 | (21 - 130) |
| 2-Fluorobiphenyl | 77 | (28 - 108) |
| 2-Fluorophenol | 66 | (28 - 107) |
| Phenol-d5 | 66 | (30 - 112) |
| 2,4,6-Tribromophenol | 75 | (21 - 116) |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

**ARCADIS U.S., Inc.**

**Client Sample ID: RB032910**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-002 | **Work Order #...:** | LXGPW1AA | **Matrix.....:** | WATER |
| **Date Sampled...:** | 03/29/10 17:30 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095222 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095331 | **Analysis Time..:** | 19:58 | | |
| **Dilution Factor:** | 0.97 | **Initial Wgt/Vol:** | 1030 mL | **Final Wgt/Vol..:** | 1 mL |
| **Analyst ID.....:** | 003200 | **Instrument ID..:** | 731 | | |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 0.97 | ug/L | 0.064 |
| Naphthalene | ND | 0.19 | ug/L | 0.014 |
| Acenaphthylene | ND | 0.19 | ug/L | 0.015 |
| Acenaphthene | ND | 0.19 | ug/L | 0.014 |
| Fluorene | ND | 0.19 | ug/L | 0.021 |
| Phenanthrene | ND | 0.19 | ug/L | 0.041 |
| Anthracene | ND | 0.19 | ug/L | 0.015 |
| Fluoranthene | ND | 0.19 | ug/L | 0.016 |
| Pyrene | ND | 0.19 | ug/L | 0.015 |
| Benzo(a)anthracene | ND | 0.19 | ug/L | 0.014 |
| Chrysene | ND | 0.19 | ug/L | 0.014 |
| Benzo(b)fluoranthene | ND | 0.19 | ug/L | 0.015 |
| Benzo(k)fluoranthene | ND | 0.19 | ug/L | 0.053 |
| Benzo(a)pyrene | ND | 0.19 | ug/L | 0.013 |
| Indeno(1,2,3-cd)pyrene | ND | 0.19 | ug/L | 0.019 |
| Dibenzo(a,h)anthracene | ND | 0.19 | ug/L | 0.015 |
| Benzo(ghi)perylene | ND | 0.19 | ug/L | 0.015 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 85 | (23 - 112) |
| Terphenyl-d14 | 83 | (10 - 132) |
| 2-Fluorobiphenyl | 78 | (19 - 107) |
| 2-Fluorophenol | 81 | (10 - 111) |
| Phenol-d5 | 83 | (15 - 112) |
| 2,4,6-Tribromophenol | 86 | (16 - 122) |

**ARCADIS U.S., Inc.**

**Client Sample ID: RB033010**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-032 | **Work Order #...:** | LXGRA1AA | **Matrix.....:** | WATER |
| **Date Sampled...:** | 03/30/10 18:00 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095222 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095331 | **Analysis Time..:** | 20:22 | | |
| **Dilution Factor:** | 1.05 | **Initial Wgt/Vol:** | 950 mL | **Final Wgt/Vol..:** | 1 mL |
| **Analyst ID.....:** | 003200 | **Instrument ID..:** | 731 | | |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 1.0 | ug/L | 0.070 |
| Naphthalene | ND | 0.21 | ug/L | 0.015 |
| Acenaphthylene | ND | 0.21 | ug/L | 0.016 |
| Acenaphthene | ND | 0.21 | ug/L | 0.015 |
| Fluorene | ND | 0.21 | ug/L | 0.023 |
| Phenanthrene | ND | 0.21 | ug/L | 0.045 |
| Anthracene | ND | 0.21 | ug/L | 0.016 |
| Fluoranthene | ND | 0.21 | ug/L | 0.017 |
| Pyrene | ND | 0.21 | ug/L | 0.016 |
| Benzo(a)anthracene | ND | 0.21 | ug/L | 0.015 |
| Chrysene | ND | 0.21 | ug/L | 0.015 |
| Benzo(b)fluoranthene | ND | 0.21 | ug/L | 0.016 |
| Benzo(k)fluoranthene | ND | 0.21 | ug/L | 0.057 |
| Benzo(a)pyrene | ND | 0.21 | ug/L | 0.014 |
| Indeno(1,2,3-cd)pyrene | ND | 0.21 | ug/L | 0.021 |
| Dibenzo(a,h)anthracene | ND | 0.21 | ug/L | 0.016 |
| Benzo(ghi)perylene | ND | 0.21 | ug/L | 0.016 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 84 | (23 - 112) |
| Terphenyl-d14 | 78 | (10 - 132) |
| 2-Fluorobiphenyl | 71 | (19 - 107) |
| 2-Fluorophenol | 76 | (10 - 111) |
| Phenol-d5 | 78 | (15 - 112) |
| 2,4,6-Tribromophenol | 81 | (16 - 122) |

**ARCADIS U.S., Inc.**

**Client Sample ID: RB033110**

**GC/MS Semivolatiles**

| | | | | | |
|---|---|---|---|---|---|
| **Lot-Sample #...:** | C0D020489-033 | **Work Order #...:** | LXGRC1AA | **Matrix.....:** | WATER |
| **Date Sampled...:** | 03/31/10 12:00 | **Date Received..:** | 04/02/10 10:15 | **MS Run #.....:** | 0095222 |
| **Prep Date.....:** | 04/05/10 | **Analysis Date..:** | 04/06/10 | | |
| **Prep Batch #...:** | 0095331 | **Analysis Time..:** | 20:46 | | |
| **Dilution Factor:** | 0.96 | **Initial Wgt/Vol:** | 1040 mL | **Final Wgt/Vol..:** | 1 mL |
| **Analyst ID.....:** | 003200 | **Instrument ID..:** | 731 | | |
| | | **Method.....:** | SW846 8270C | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | MDL |
|---|---|---|---|---|
| Pentachlorophenol | ND | 0.96 | ug/L | 0.064 |
| Naphthalene | ND | 0.19 | ug/L | 0.013 |
| Acenaphthylene | ND | 0.19 | ug/L | 0.015 |
| Acenaphthene | ND | 0.19 | ug/L | 0.014 |
| Fluorene | ND | 0.19 | ug/L | 0.021 |
| Phenanthrene | ND | 0.19 | ug/L | 0.041 |
| Anthracene | ND | 0.19 | ug/L | 0.015 |
| Fluoranthene | ND | 0.19 | ug/L | 0.016 |
| Pyrene | ND | 0.19 | ug/L | 0.015 |
| Benzo(a)anthracene | ND | 0.19 | ug/L | 0.014 |
| Chrysene | ND | 0.19 | ug/L | 0.013 |
| Benzo(b)fluoranthene | ND | 0.19 | ug/L | 0.015 |
| Benzo(k)fluoranthene | ND | 0.19 | ug/L | 0.053 |
| Benzo(a)pyrene | ND | 0.19 | ug/L | 0.013 |
| Indeno(1,2,3-cd)pyrene | ND | 0.19 | ug/L | 0.019 |
| Dibenzo(a,h)anthracene | ND | 0.19 | ug/L | 0.015 |
| Benzo(ghi)perylene | ND | 0.19 | ug/L | 0.014 |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| Nitrobenzene-d5 | 88 | (23 - 112) |
| Terphenyl-d14 | 79 | (10 - 132) |
| 2-Fluorobiphenyl | 75 | (19 - 107) |
| 2-Fluorophenol | 80 | (10 - 111) |
| Phenol-d5 | 82 | (15 - 112) |
| 2,4,6-Tribromophenol | 85 | (16 - 122) |

ARCADIS U.S., Inc.

Client Sample ID: A1-35 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-021
Date Sampled...: 03/30/10 Date Received..: 04/02/10
% Moisture.....: 31
Matrix.....: SOLID

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | | |
| Arsenic | 10.5 | | 1.4 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQR1AD |
| | | | Dilution Factor: 1 | | Analysis Time..: 15:23 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.32 | |
| Chromium | 15.5 | J | 0.72 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQR1AE |
| | | | Dilution Factor: 1 | | Analysis Time..: 15:23 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.12 | |
| Copper | 18.4 | | 3.6 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQR1AF |
| | | | Dilution Factor: 1 | | Analysis Time..: 15:23 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.49 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A1-36 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-018
Date Sampled...: 03/30/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 31

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | |
| Arsenic | 13.5 | 1.4 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQM1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 15:11 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.32 | |
| Chromium | 19.4 J | 0.72 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQM1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 15:11 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.12 | |
| Copper | 21.3 | 3.6 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQM1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 15:11 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.49 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A1-37 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-017
Date Sampled...: 03/30/10 Date Received..: 04/02/10
% Moisture.....: 38
Matrix.....: SOLID

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | | |
| Arsenic | 9.0 | | 1.6 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQK1AD |
| | | | Dilution Factor: 1 | | Analysis Time..: 15:06 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.36 | |
| Chromium | 15.3 | J | 0.81 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQK1AE |
| | | | Dilution Factor: 1 | | Analysis Time..: 15:06 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.14 | |
| Copper | 17.6 | | 4.0 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQK1AF |
| | | | Dilution Factor: 1 | | Analysis Time..: 15:06 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.55 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

**Client Sample ID: A1-38 (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-019
**Date Sampled...:** 03/30/10 **Date Received..:** 04/02/10 **Matrix.....:** SOLID
**% Moisture.....:** 35

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097431 | | | | | | | |
| **Arsenic** | **9.3** | | **1.5** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGQP1AD** |
| | | | Dilution Factor: 1 | | Analysis Time..: 15:15 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.34 | |
| **Chromium** | **15.8** | J | **0.77** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGQP1AE** |
| | | | Dilution Factor: 1 | | Analysis Time..: 15:15 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.13 | |
| **Copper** | **19.0** | | **3.8** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGQP1AF** |
| | | | Dilution Factor: 1 | | Analysis Time..: 15:15 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.53 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A1-39 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-020
Date Sampled...: 03/30/10 Date Received..: 04/02/10
% Moisture.....: 33
Matrix.....: SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | |
| Arsenic | 5.2 | 1.5 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQQ1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 15:19 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.33 | |
| Chromium | 11.9 J | 0.74 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQQ1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 15:19 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.13 | |
| Copper | 12.5 | 3.7 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQQ1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 15:19 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.51 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A1-40 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-022
Date Sampled...: 03/30/10 Date Received..: 04/02/10
% Moisture.....: 41
Matrix.....: SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 10.3 | 1.7 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQT1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 16:41 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.38 | |
| Chromium | 17.8 | 0.85 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQT1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 16:41 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.14 | |
| Copper | 40.1 | 4.3 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQT1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 16:41 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.58 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A1-41 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-023
Date Sampled...: 03/30/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 18

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 11.5 | 1.2 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQV1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 16:45 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.27 | |
| Chromium | 19.6 | 0.61 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQV1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 16:45 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.10 | |
| Copper | 17.0 | 3.0 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQV1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 16:45 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.42 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A1-42 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-024
Date Sampled...: 03/30/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 29

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 8.7 | 1.4 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ01AD |
| | | Dilution Factor: 1 | | Analysis Time..: 15:36 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.32 | |
| Chromium | 17.1 | 0.71 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ01AE |
| | | Dilution Factor: 1 | | Analysis Time..: 15:36 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.12 | |
| Copper | 17.9 | 3.5 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ01AF |
| | | Dilution Factor: 1 | | Analysis Time..: 15:36 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.48 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A1-43 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-025
Date Sampled...: 03/30/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 36

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 14.8 | 1.6 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ11AH |
| | | Dilution Factor: 1 | | Analysis Time..: 15:50 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.35 | |
| Chromium | 21.9 | 0.78 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ11AL |
| | | Dilution Factor: 1 | | Analysis Time..: 15:50 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.13 | |
| Copper | 20.9 | 3.9 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ11AP |
| | | Dilution Factor: 1 | | Analysis Time..: 15:50 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.53 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A1-44 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-026
Date Sampled...: 03/30/10 Date Received..: 04/02/10
% Moisture.....: 38
Matrix.....: SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 11.6 | 1.6 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ21AD |
| | | Dilution Factor: 1 | | Analysis Time..: 16:07 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.36 | |
| Chromium | 18.6 | 0.80 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ21AE |
| | | Dilution Factor: 1 | | Analysis Time..: 16:07 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.14 | |
| Copper | 12.5 | 4.0 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ21AF |
| | | Dilution Factor: 1 | | Analysis Time..: 16:07 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.55 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: FIELD DUPLICATE #4

TOTAL Metals

Lot-Sample #...: C0D020489-027
Date Sampled...: 03/30/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 34

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 14.1 | 1.5 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ41AD |
| | | Dilution Factor: 1 | | Analysis Time..: 16:11 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.34 | |
| Chromium | 14.5 | 0.76 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ41AE |
| | | Dilution Factor: 1 | | Analysis Time..: 16:11 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.13 | |
| Copper | 12.2 | 3.8 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ41AF |
| | | Dilution Factor: 1 | | Analysis Time..: 16:11 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.52 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A1-45 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-029
Date Sampled...: 03/30/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 28

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 12.0 | 1.4 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ71AD |
| | | Dilution Factor: 1 | | Analysis Time..: 16:20 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.31 | |
| Chromium | 20.7 | 0.70 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ71AE |
| | | Dilution Factor: 1 | | Analysis Time..: 16:20 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.12 | |
| Copper | 23.4 | 3.5 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ71AF |
| | | Dilution Factor: 1 | | Analysis Time..: 16:20 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.48 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A1-46 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-030 Matrix.....: SOLID
Date Sampled...: 03/30/10 Date Received..: 04/02/10
% Moisture.....: 40

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 6.5 | 1.7 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ81AD |
| | | Dilution Factor: 1 | | Analysis Time..: 16:24 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.37 | |
| Chromium | 20.1 | 0.83 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ81AE |
| | | Dilution Factor: 1 | | Analysis Time..: 16:24 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.14 | |
| Copper | 18.6 | 4.2 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ81AF |
| | | Dilution Factor: 1 | | Analysis Time..: 16:24 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.57 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A1-47 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-028
Date Sampled...: 03/30/10 Date Received..: 04/02/10
% Moisture.....: 35
Matrix.....: SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 17.6 | 1.5 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ51AD |
| | | Dilution Factor: 1 | | Analysis Time..: 16:15 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.34 | |
| Chromium | 18.8 | 1.5 | mg/kg | SW846 6010B | 04/07-04/12/10 | LXGQ51AE |
| | | Dilution Factor: 2 | | Analysis Time..: 09:42 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.26 | |
| Copper | 22.8 | 3.8 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQ51AF |
| | | Dilution Factor: 1 | | Analysis Time..: 16:15 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.53 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

**Client Sample ID: A1-48 (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-031
**Date Sampled...:** 03/30/10 **Date Received..:** 04/02/10
**% Moisture.....:** 23
**Matrix.....:** SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097450 | | | | | | |
| **Arsenic** | **8.4** | **1.3** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGQ91AD** |
| | | Dilution Factor: 1 | | Analysis Time..: 16:28 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.29 | |
| **Chromium** | **18.5** | **0.65** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGQ91AE** |
| | | Dilution Factor: 1 | | Analysis Time..: 16:28 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.11 | |
| **Copper** | **23.8** | **3.3** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGQ91AF** |
| | | Dilution Factor: 1 | | Analysis Time..: 16:28 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.45 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A2-11 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-003 Matrix.....: SOLID
Date Sampled...: 03/29/10 Date Received..: 04/02/10
% Moisture.....: 38

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | | |
| Arsenic | 21.2 | | 1.6 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP01AD |
| | | | Dilution Factor: 1 | | Analysis Time..: 13:32 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.36 | |
| Chromium | 48.9 | J | 0.81 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP01AE |
| | | | Dilution Factor: 1 | | Analysis Time..: 13:32 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.14 | |
| Copper | 26.8 | | 4.0 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP01AF |
| | | | Dilution Factor: 1 | | Analysis Time..: 13:32 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.55 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A2-12 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-001
Date Sampled...: 03/29/10 Date Received..: 04/02/10
% Moisture.....: 32
Matrix.....: SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | |
| Arsenic | 44.3 | 1.5 | mg/kg | SW846 6010B | 04/07-04/12/10 | LXGPP1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 09:38 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.33 | |
| Chromium | 118 J | 0.74 | mg/kg | SW846 6010B | 04/07-04/12/10 | LXGPP1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 09:38 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.13 | |
| Copper | 32.6 | 3.7 | mg/kg | SW846 6010B | 04/07-04/12/10 | LXGPP1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 09:38 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.51 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A2-13 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-004
Date Sampled...: 03/29/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 29

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | |
| Arsenic | 12.1 | 1.4 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP21AD |
| | | Dilution Factor: 1 | | Analysis Time..: 13:36 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.32 | |
| Chromium | 17.1 J | 1.4 | mg/kg | SW846 6010B | 04/07-04/12/10 | LXGP21AE |
| | | Dilution Factor: 2 | | Analysis Time..: 09:33 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.24 | |
| Copper | 45.8 | 3.5 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP21AF |
| | | Dilution Factor: 1 | | Analysis Time..: 13:36 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.48 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: FIELD DUPLICATE #1

TOTAL Metals

Lot-Sample #...: C0D020489-005
Date Sampled...: 03/29/10 Date Received..: 04/02/10
% Moisture.....: 34
Matrix.....: SOLID

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | | |
| Arsenic | 12.6 | | 1.5 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP31AD |
| | | | Dilution Factor: 1 | | Analysis Time..: 13:41 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.34 | |
| Chromium | 19.2 | J | 0.76 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP31AE |
| | | | Dilution Factor: 1 | | Analysis Time..: 13:41 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.13 | |
| Copper | 65.0 | | 3.8 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP31AF |
| | | | Dilution Factor: 1 | | Analysis Time..: 13:41 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.52 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A2-14 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-006
Date Sampled...: 03/29/10 Date Received..: 04/02/10
% Moisture.....: 20
Matrix.....: SOLID

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | | |
| Arsenic | 14.8 | | 1.3 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP41AD |
| | | | Dilution Factor: 1 | | Analysis Time..: 13:45 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.28 | |
| Chromium | 32.9 | J | 0.63 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP41AE |
| | | | Dilution Factor: 1 | | Analysis Time..: 13:45 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.11 | |
| Copper | 19.9 | | 3.1 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP41AF |
| | | | Dilution Factor: 1 | | Analysis Time..: 13:45 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.43 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

**Client Sample ID: A2-15 (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-007
**Date Sampled...:** 03/29/10 **Date Received..:** 04/02/10
**% Moisture.....:** 29
**Matrix.....:** SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097431 | | | | | | |
| **Arsenic** | **63.8** | **1.4** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGP51AD** |
| | | Dilution Factor: 1 | | Analysis Time..: 13:49 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.31 | |
| **Chromium** | **138** J | **0.71** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGP51AE** |
| | | Dilution Factor: 1 | | Analysis Time..: 13:49 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.12 | |
| **Copper** | **36.8** | **3.5** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGP51AF** |
| | | Dilution Factor: 1 | | Analysis Time..: 13:49 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.48 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A2-16 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-008
Date Sampled...: 03/29/10 Date Received..: 04/02/10
% Moisture.....: 43
Matrix.....: SOLID

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | | |
| Arsenic | 44.4 | | 1.8 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP61AD |
| | | | Dilution Factor: 1 | | Analysis Time..: 13:53 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.39 | |
| Chromium | 155 | J | 0.88 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP61AE |
| | | | Dilution Factor: 1 | | Analysis Time..: 13:53 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.15 | |
| Copper | 41.3 | | 4.4 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP61AF |
| | | | Dilution Factor: 1 | | Analysis Time..: 13:53 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.60 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A2-17 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-009
Date Sampled...: 03/29/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 40

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | | |
| Arsenic | 25.2 | | 1.7 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP81AH |
| | | | Dilution Factor: 1 | | Analysis Time..: 14:06 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.37 | |
| Chromium | 78.3 | J | 0.83 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP81AL |
| | | | Dilution Factor: 1 | | Analysis Time..: 14:06 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.14 | |
| Copper | 27.2 | | 4.1 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP81AP |
| | | | Dilution Factor: 1 | | Analysis Time..: 14:06 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.57 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A2-18 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-010 Matrix.....: SOLID
Date Sampled...: 03/29/10 Date Received..: 04/02/10
% Moisture.....: 28

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | | |
| Arsenic | 13.8 | | 1.4 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP91AD |
| | | | Dilution Factor: 1 | | Analysis Time..: 14:23 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.31 | |
| Chromium | 42.4 | J | 0.69 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP91AE |
| | | | Dilution Factor: 1 | | Analysis Time..: 14:23 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.12 | |
| Copper | 34.0 | | 3.5 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGP91AF |
| | | | Dilution Factor: 1 | | Analysis Time..: 14:23 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.47 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A2-19 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-011 Matrix.....: SOLID
Date Sampled...: 03/29/10 Date Received..: 04/02/10
% Moisture.....: 37

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | |
| Arsenic | 50.4 | 1.6 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQA1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 14:32 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.35 | |
| Chromium | 154 J | 0.79 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQA1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 14:32 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.13 | |
| Copper | 39.0 | 4.0 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQA1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 14:32 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.54 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: FIELD DUPLICATE #2

TOTAL Metals

Lot-Sample #...: C0D020489-012
Date Sampled...: 03/29/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 37

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | |
| Arsenic | 35.8 | 1.6 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQC1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 14:36 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.35 | |
| Chromium | 153 J | 0.79 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQC1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 14:36 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.14 | |
| Copper | 42.1 | 4.0 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQC1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 14:36 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.54 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A3-18 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-036
Date Sampled...: 03/30/10 Date Received..: 04/02/10
% Moisture.....: 26
Matrix.....: SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 6.0 | 1.4 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRG1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 16:58 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.30 | |
| Chromium | 18.1 | 0.68 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRG1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 16:58 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.12 | |
| Copper | 17.4 | 3.4 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRG1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 16:58 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.46 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A3-19 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-037
Date Sampled...: 03/30/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 37

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 14.2 | 1.6 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRH1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 17:02 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.36 | |
| Chromium | 22.5 | 0.80 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRH1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 17:02 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.14 | |
| Copper | 22.9 | 4.0 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRH1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 17:02 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.55 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

**ARCADIS U.S., Inc.**

**Client Sample ID: A3-20 (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-034
**Date Sampled...:** 03/30/10 **Date Received..:** 04/02/10
**% Moisture.....:** 43
**Matrix.....:** SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097450 | | | | | | |
| **Arsenic** | **11.0** | **1.8** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGRD1AD** |
| | | Dilution Factor: 1 | | Analysis Time..: 16:50 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.39 | |
| **Chromium** | **25.4** | **0.88** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGRD1AE** |
| | | Dilution Factor: 1 | | Analysis Time..: 16:50 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.15 | |
| **Copper** | **34.1** | **4.4** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGRD1AF** |
| | | Dilution Factor: 1 | | Analysis Time..: 16:50 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.60 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: FIELD DUPLICATE #5

TOTAL Metals

Lot-Sample #...: C0D020489-035
Date Sampled...: 03/30/10 Date Received..: 04/02/10
% Moisture.....: 46
Matrix.....: SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 10.8 | 1.8 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRF1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 16:54 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.41 | |
| Chromium | 23.6 | 0.92 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRF1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 16:54 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.16 | |
| Copper | 32.4 | 4.6 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRF1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 16:54 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.63 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

**ARCADIS U.S., Inc.**

**Client Sample ID: A3-21 (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-040 **Matrix.....:** SOLID
**Date Sampled...:** 03/30/10 **Date Received..:** 04/02/10
**% Moisture.....:** 36

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097450 | | | | | | |
| **Arsenic** | **43.2** | **1.6** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGRN1AD** |
| | | Dilution Factor: 1 | | Analysis Time..: 17:15 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.35 | |
| **Chromium** | **53.4** | **0.78** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGRN1AE** |
| | | Dilution Factor: 1 | | Analysis Time..: 17:15 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.13 | |
| **Copper** | **40.0** | **3.9** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGRN1AF** |
| | | Dilution Factor: 1 | | Analysis Time..: 17:15 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.54 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A3-22 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-039
Date Sampled...: 03/30/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 59

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 9.9 | 2.5 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRM1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 17:11 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.55 | |
| Chromium | 26.7 | 1.2 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRM1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 17:11 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.21 | |
| Copper | 41.7 | 6.1 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRM1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 17:11 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.84 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A3-23 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-038 Matrix.....: SOLID
Date Sampled...: 03/30/10 Date Received..: 04/02/10
% Moisture.....: 38

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 14.1 | 1.6 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRK1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 17:07 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.36 | |
| Chromium | 21.6 | 0.80 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRK1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 17:07 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.14 | |
| Copper | 21.9 | 4.0 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRK1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 17:07 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.55 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A3-24 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-041
Date Sampled...: 03/30/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 48

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097450 | | | | | | |
| Arsenic | 19.0 | 1.9 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRP1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 17:20 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.43 | |
| Chromium | 41.1 | 0.96 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRP1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 17:20 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.16 | |
| Copper | 28.0 | 4.8 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRP1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 17:20 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097236 | MDL.....: 0.66 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

**ARCADIS U.S., Inc.**

**Client Sample ID: A4-1 (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-058 **Matrix.....:** SOLID
**Date Sampled...:** 03/31/10 **Date Received..:** 04/02/10
**% Moisture.....:** 33

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097451 | | | | | | |
| **Arsenic** | **8.3** | **1.5** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTL1AD** |
| | | Dilution Factor: 1 | | Analysis Time..: 19:20 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.33 | |
| **Chromium** | **60.5** | **0.75** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTL1AR** |
| | | Dilution Factor: 1 | | Analysis Time..: 19:20 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.13 | |
| **Copper** | **27.1** | **3.7** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTL1AF** |
| | | Dilution Factor: 1 | | Analysis Time..: 19:20 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.51 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

**Client Sample ID: A4-2 (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-059 **Matrix.....:** SOLID
**Date Sampled...:** 03/31/10 **Date Received..:** 04/02/10
**% Moisture.....:** 29

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097451 | | | | | | |
| **Arsenic** | **10.5** | **1.4** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTM1AD** |
| | | Dilution Factor: 1 | | Analysis Time..: 19:25 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.31 | |
| **Chromium** | **21.0** | **0.71** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTM1AE** |
| | | Dilution Factor: 1 | | Analysis Time..: 19:25 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.12 | |
| **Copper** | **38.1** | **3.5** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTM1AF** |
| | | Dilution Factor: 1 | | Analysis Time..: 19:25 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.48 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A4-3 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-060
Date Sampled...: 03/31/10 Date Received..: 04/02/10
% Moisture.....: 28
Matrix.....: SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097451 | | | | | | |
| Arsenic | 11.9 | 1.4 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGTN1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 19:29 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.31 | |
| Chromium | 20.6 | 0.69 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGTN1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 19:29 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.12 | |
| Copper | 20.7 | 3.5 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGTN1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 19:29 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.47 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A4-4 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-057 Matrix.....: SOLID
Date Sampled...: 03/31/10 Date Received..: 04/02/10
% Moisture.....: 48

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097451 | | | | | | |
| Arsenic | 7.0 | 1.9 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGTK1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 19:16 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.43 | |
| Chromium | 20.6 | 0.97 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGTK1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 19:16 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.16 | |
| Copper | 36.8 | 4.8 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGTK1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 19:16 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.66 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

**Client Sample ID: A4-5 (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-055 **Matrix.....:** SOLID
**Date Sampled...:** 03/31/10 **Date Received..:** 04/02/10
**% Moisture.....:** 33

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097451 | | | | | | |
| **Arsenic** | **11.4** | **1.5** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTG1AD** |
| | | Dilution Factor: 1 | | Analysis Time..: 18:59 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.34 | |
| **Chromium** | **23.9** | **0.75** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTG1AE** |
| | | Dilution Factor: 1 | | Analysis Time..: 18:59 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.13 | |
| **Copper** | **128** | **3.8** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTG1AF** |
| | | Dilution Factor: 1 | | Analysis Time..: 18:59 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.51 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A4-6 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-056
Date Sampled...: 03/31/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 47

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097451 | | | | | | |
| Arsenic | 13.0 | 1.9 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGTJ1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 19:03 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.42 | |
| Chromium | 28.2 | 0.94 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGTJ1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 19:03 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.16 | |
| Copper | 46.7 | 4.7 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGTJ1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 19:03 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.64 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

**Client Sample ID: A4-7 (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-047
**Date Sampled...:** 03/31/10 **Date Received..:** 04/02/10
**% Moisture.....:** 35
**Matrix.....:** SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097451 | | | | | | |
| **Arsenic** | **9.3** | **1.5** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGR31AD** |
| | | Dilution Factor: 1 | | Analysis Time..: 17:50 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.34 | |
| **Chromium** | **18.0** | **0.77** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGR31AE** |
| | | Dilution Factor: 1 | | Analysis Time..: 17:50 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.13 | |
| **Copper** | **21.9** | **3.9** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGR31AF** |
| | | Dilution Factor: 1 | | Analysis Time..: 17:50 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.53 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A4-8 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-048
Date Sampled...: 03/31/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 30

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097451 | | | | | | |
| Arsenic | 7.1 | 1.4 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGR51AD |
| | | Dilution Factor: 1 | | Analysis Time..: 17:54 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.32 | |
| Chromium | 18.2 | 0.71 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGR51AE |
| | | Dilution Factor: 1 | | Analysis Time..: 17:54 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.12 | |
| Copper | 24.6 | 3.6 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGR51AF |
| | | Dilution Factor: 1 | | Analysis Time..: 17:54 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.49 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

**Client Sample ID: FIELD DUPLICATE #6**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-049 **Matrix.....:** SOLID
**Date Sampled...:** 03/31/10 **Date Received..:** 04/02/10
**% Moisture.....:** 32

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097451 | | | | | | |
| **Arsenic** | 6.7 | 1.5 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGR71AD |
| | | Dilution Factor: 1 | | Analysis Time..: 17:59 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.33 | |
| **Chromium** | 18.9 | 0.74 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGR71AE |
| | | Dilution Factor: 1 | | Analysis Time..: 17:59 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.12 | |
| **Copper** | 23.8 | 3.7 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGR71AF |
| | | Dilution Factor: 1 | | Analysis Time..: 17:59 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.50 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

**ARCADIS U.S., Inc.**

**Client Sample ID: A4-9 (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-050 **Matrix.....:** SOLID
**Date Sampled...:** 03/31/10 **Date Received..:** 04/02/10
**% Moisture.....:** 36

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097451 | | | | | | |
| **Arsenic** | **8.4** | **1.6** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGR81AD** |
| | | Dilution Factor: 1 | | Analysis Time..: 18:03 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.35 | |
| **Chromium** | **19.6** | **0.78** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGR81AE** |
| | | Dilution Factor: 1 | | Analysis Time..: 18:03 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.13 | |
| **Copper** | **22.9** | **3.9** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGR81AF** |
| | | Dilution Factor: 1 | | Analysis Time..: 18:03 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.53 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A4-10 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-051 Matrix.....: SOLID
Date Sampled...: 03/31/10 Date Received..: 04/02/10
% Moisture.....: 24

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097451 | | | | | | |
| Arsenic | 12.8 | 1.3 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGR91AD |
| | | Dilution Factor: 1 | | Analysis Time..: 18:07 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.30 | |
| Chromium | 15.0 | 0.66 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGR91AE |
| | | Dilution Factor: 1 | | Analysis Time..: 18:07 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.11 | |
| Copper | 16.7 | 3.3 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGR91AF |
| | | Dilution Factor: 1 | | Analysis Time..: 18:07 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.45 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A5-6 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-014 Matrix.....: SOLID
Date Sampled...: 03/30/10 Date Received..: 04/02/10
% Moisture.....: 42

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | | |
| Arsenic | 6.5 | | 1.7 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQF1AD |
| | | | Dilution Factor: 1 | | Analysis Time..: 14:45 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.39 | |
| Chromium | 20.2 | J | 0.87 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQF1AE |
| | | | Dilution Factor: 1 | | Analysis Time..: 14:45 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.15 | |
| Copper | 24.3 | | 4.3 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQF1AF |
| | | | Dilution Factor: 1 | | Analysis Time..: 14:45 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.59 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

**Client Sample ID: FIELD DUPLICATE #3**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-015 **Matrix.....:** SOLID
**Date Sampled...:** 03/30/10 **Date Received..:** 04/02/10
**% Moisture.....:** 45

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097431 | | | | | | | |
| **Arsenic** | **6.4** | | **1.8** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGQG1AD** |
| | | | Dilution Factor: 1 | | Analysis Time..: 14:58 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.41 | |
| **Chromium** | **21.2** | J | **0.91** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGQG1AE** |
| | | | Dilution Factor: 1 | | Analysis Time..: 14:58 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.16 | |
| **Copper** | **26.8** | | **4.6** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGQG1AF** |
| | | | Dilution Factor: 1 | | Analysis Time..: 14:58 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.62 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A5-7 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-016
Date Sampled...: 03/30/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 39

| PARAMETER | RESULT | | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|---|
| Prep Batch #...: 0097431 | | | | | | | |
| Arsenic | 10.4 | | 1.6 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQH1AD |
| | | | Dilution Factor: 1 | | Analysis Time..: 15:02 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.36 | |
| Chromium | 21.9 | J | 0.81 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQH1AE |
| | | | Dilution Factor: 1 | | Analysis Time..: 15:02 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.14 | |
| Copper | 26.8 | | 4.1 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGQH1AF |
| | | | Dilution Factor: 1 | | Analysis Time..: 15:02 | Analyst ID.....: 22952 | |
| | | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.56 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A6-1 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-042
Date Sampled...: 03/31/10 Date Received..: 04/02/10
% Moisture.....: 41
Matrix.....: SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097451 | | | | | | |
| Arsenic | 7.4 | 1.7 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRQ1AH |
| | | Dilution Factor: 1 | | Analysis Time..: 18:12 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.38 | |
| Chromium | 15.4 | 0.85 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRQ1AL |
| | | Dilution Factor: 1 | | Analysis Time..: 18:12 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.14 | |
| Copper | 16.2 | 4.3 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRQ1AP |
| | | Dilution Factor: 1 | | Analysis Time..: 18:12 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.58 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A6-2 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-043
Date Sampled...: 03/31/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 34

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097451 | | | | | | |
| Arsenic | 11.9 | 1.5 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRV1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 18:37 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.34 | |
| Chromium | 15.1 | 0.76 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRV1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 18:37 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.13 | |
| Copper | 15.6 | 3.8 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRV1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 18:37 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.52 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A6-3 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-044
Date Sampled...: 03/31/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 42

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097451 | | | | | | |
| Arsenic | 16.5 | 1.7 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRX1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 18:42 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.38 | |
| Chromium | 22.2 | 0.86 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRX1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 18:42 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.15 | |
| Copper | 31.2 | 4.3 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGRX1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 18:42 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.59 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

**Client Sample ID: A6-4 (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-045
**Date Sampled...:** 03/31/10 **Date Received..:** 04/02/10
**% Moisture.....:** 27
**Matrix.....:** SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097451 | | | | | | |
| **Arsenic** | **8.2** | **1.4** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGR11AD** |
| | | Dilution Factor: 1 | | Analysis Time..: 17:41 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.30 | |
| **Chromium** | **19.0** | **0.68** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGR11AE** |
| | | Dilution Factor: 1 | | Analysis Time..: 17:41 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.12 | |
| **Copper** | **38.2** | **3.4** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGR11AF** |
| | | Dilution Factor: 1 | | Analysis Time..: 17:41 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.47 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A6-5 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-046
Date Sampled...: 03/31/10 Date Received..: 04/02/10 Matrix.....: SOLID
% Moisture.....: 33

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097451 | | | | | | |
| Arsenic | 8.0 | 1.5 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGR21AD |
| | | Dilution Factor: 1 | | Analysis Time..: 17:46 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.33 | |
| Chromium | 14.7 | 0.74 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGR21AE |
| | | Dilution Factor: 1 | | Analysis Time..: 17:46 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.13 | |
| Copper | 17.2 | 3.7 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGR21AF |
| | | Dilution Factor: 1 | | Analysis Time..: 17:46 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.51 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

**ARCADIS U.S., Inc.**

**Client Sample ID: A6-6 (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-052
**Date Sampled...:** 03/31/10 **Date Received..:** 04/02/10
**% Moisture.....:** 40
**Matrix.....:** SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097451 | | | | | | |
| **Arsenic** | **21.5** | **1.7** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTA1AD** |
| | | Dilution Factor: 1 | | Analysis Time..: 18:46 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.37 | |
| **Chromium** | **19.5** | **0.84** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTA1AE** |
| | | Dilution Factor: 1 | | Analysis Time..: 18:46 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.14 | |
| **Copper** | **24.0** | **4.2** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTA1AF** |
| | | Dilution Factor: 1 | | Analysis Time..: 18:46 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.57 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

**Client Sample ID: A6-7 (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-053 **Matrix.....:** SOLID
**Date Sampled...:** 03/31/10 **Date Received..:** 04/02/10
**% Moisture.....:** 30

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097451 | | | | | | |
| **Arsenic** | **8.5** | **1.4** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTC1AD** |
| | | Dilution Factor: 1 | | Analysis Time..: 18:50 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.32 | |
| **Chromium** | **16.8** | **0.72** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTC1AE** |
| | | Dilution Factor: 1 | | Analysis Time..: 18:50 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.12 | |
| **Copper** | **23.6** | **3.6** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGTC1AF** |
| | | Dilution Factor: 1 | | Analysis Time..: 18:50 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.49 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

Client Sample ID: A6-8 (0-6)

TOTAL Metals

Lot-Sample #...: C0D020489-054
Date Sampled...: 03/31/10 Date Received..: 04/02/10
% Moisture.....: 21
Matrix.....: SOLID

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| Prep Batch #...: 0097451 | | | | | | |
| Arsenic | 10.4 | 1.3 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGTE1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 18:54 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.28 | |
| Chromium | 15.0 | 0.63 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGTE1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 18:54 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.11 | |
| Copper | 15.3 | 3.2 | mg/kg | SW846 6010B | 04/07-04/09/10 | LXGTE1AF |
| | | Dilution Factor: 1 | | Analysis Time..: 18:54 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097237 | MDL.....: 0.43 | |

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

ARCADIS U.S., Inc.

**Client Sample ID: NPL (0-6)**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-013 **Matrix.....:** SOLID
**Date Sampled...:** 03/29/10 **Date Received..:** 04/02/10
**% Moisture.....:** 36

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097431 | | | | | | |
| **Arsenic** | **9.6** | **1.6** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGQD1AD** |
| | | Dilution Factor: 1 | | Analysis Time..: 14:40 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.35 | |
| **Chromium** | **12.9** J | **0.79** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGQD1AE** |
| | | Dilution Factor: 1 | | Analysis Time..: 14:40 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.13 | |
| **Copper** | **21.8** | **3.9** | **mg/kg** | **SW846 6010B** | **04/07-04/09/10** | **LXGQD1AF** |
| | | Dilution Factor: 1 | | Analysis Time..: 14:40 | Analyst ID.....: 22952 | |
| | | Instrument ID..: 6500ICP | | MS Run #.....: 0097223 | MDL.....: 0.54 | |

**NOTE(S):**

Results and reporting limits have been adjusted for dry weight.

**ARCADIS U.S., Inc.**

**Client Sample ID: RB032910**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-002 **Matrix.....:** WATER
**Date Sampled...:** 03/29/10 **Date Received..:** 04/02/10

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097428 | | | | | | |
| **Arsenic** | **2.8 B** | **10.0** | **ug/L** | **SW846 6010B** | **04/07-04/09/10** | **LXGPW1AC** |
| | | Dilution Factor: 1 | | Analysis Time..: 22:52 | Analyst ID.....: 403938 | |
| | | Instrument ID..: TRACEICP | | MS Run #.....: 0097219 | MDL.....: 2.7 | |
| Chromium | ND | 5.0 | ug/L | SW846 6010B | 04/07-04/09/10 | LXGPW1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 22:52 | Analyst ID.....: 403938 | |
| | | Instrument ID..: TRACEICP | | MS Run #.....: 0097219 | MDL.....: 0.57 | |
| Copper | ND | 25.0 | ug/L | SW846 6010B | 04/07-04/09/10 | LXGPW1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 22:52 | Analyst ID.....: 403938 | |
| | | Instrument ID..: TRACEICP | | MS Run #.....: 0097219 | MDL.....: 2.7 | |

**NOTE(S):**

B Estimated result. Result is less than RL.

**ARCADIS U.S., Inc.**

**Client Sample ID: RB033010**

**TOTAL Metals**

**Lot-Sample #...:** C0D020489-032 **Matrix.....:** WATER
**Date Sampled...:** 03/30/10 **Date Received..:** 04/02/10

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097428 | | | | | | |
| Arsenic | ND | 10.0 | ug/L | SW846 6010B | 04/07-04/09/10 | LXGRA1AC |
| | | Dilution Factor: 1 | | Analysis Time..: 22:57 | Analyst ID.....: 403938 | |
| | | Instrument ID..: TRACEICP | | MS Run #.....: 0097219 | MDL.....: 2.7 | |
| Chromium | ND | 5.0 | ug/L | SW846 6010B | 04/07-04/09/10 | LXGRA1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 22:57 | Analyst ID.....: 403938 | |
| | | Instrument ID..: TRACEICP | | MS Run #.....: 0097219 | MDL.....: 0.57 | |
| Copper | ND | 25.0 | ug/L | SW846 6010B | 04/07-04/09/10 | LXGRA1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 22:57 | Analyst ID.....: 403938 | |
| | | Instrument ID..: TRACEICP | | MS Run #.....: 0097219 | MDL.....: 2.7 | |

ARCADIS U.S., Inc.

Client Sample ID: RB033110

TOTAL Metals

Lot-Sample #...: C0D020489-033 Matrix.....: WATER
Date Sampled...: 03/31/10 Date Received..: 04/02/10

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD | PREPARATION-ANALYSIS DATE | WORK ORDER # |
|---|---|---|---|---|---|---|
| **Prep Batch #...:** 0097428 | | | | | | |
| Arsenic | ND | 10.0 | ug/L | SW846 6010B | 04/07-04/09/10 | LXGRC1AC |
| | | Dilution Factor: 1 | | Analysis Time..: 23:03 | Analyst ID.....: 403938 | |
| | | Instrument ID..: TRACEICP | | MS Run #.....: 0097219 | MDL.....: 2.7 | |
| Chromium | ND | 5.0 | ug/L | SW846 6010B | 04/07-04/09/10 | LXGRC1AD |
| | | Dilution Factor: 1 | | Analysis Time..: 23:03 | Analyst ID.....: 403938 | |
| | | Instrument ID..: TRACEICP | | MS Run #.....: 0097219 | MDL.....: 0.57 | |
| Copper | ND | 25.0 | ug/L | SW846 6010B | 04/07-04/09/10 | LXGRC1AE |
| | | Dilution Factor: 1 | | Analysis Time..: 23:03 | Analyst ID.....: 403938 | |
| | | Instrument ID..: TRACEICP | | MS Run #.....: 0097219 | MDL.....: 2.7 | |

# Carbondale, Illinois

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**Lab Name:** TESTAMERICA PITTSBURGH **Method:** MSA WALKLEY-B

**Client Name:** ARCADIS U.S., Inc. **Lot Number:** C0D020489

**Matrix:** SOLID

### Carbon, Total Organic "TOC" Walkley Solids

| Client Sample ID | Sample Number | Workorder | Result | Units | Method Detection Limit | Reporting Limit | Dilution Factor | Prep Date - Analysis Date/Time | QC Batch |
|---|---|---|---|---|---|---|---|---|---|
| A2-12 (0-6) | C0D020489 001 | LXGPP1AG | 20800 | mg/kg | 99.0 | 369 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A2-11 (0-6) | C0D020489 003 | LXGP01AG | 21700 | mg/kg | 108 | 403 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A2-19 (0-6) | C0D020489 011 | LXGQA1AG | 31600 | mg/kg | 106 | 396 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| FIELD DUPLICATE #2 | C0D020489 012 | LXGQC1AG | 35000 | mg/kg | 106 | 397 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A5-6 (0-6) | C0D020489 014 | LXGQF1AG | 28400 | mg/kg | 116 | 435 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| FIELD DUPLICATE #3 | C0D020489 015 | LXGQG1AG | 27700 | mg/kg | 122 | 456 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A5-7 (0-6) | C0D020489 016 | LXGQH1AG | 27100 | mg/kg | 109 | 407 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A1-43 (0-6) | C0D020489 025 | LXGQ11AT | 8960 | mg/kg | 105 | 391 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A1-44 (0-6) | C0D020489 026 | LXGQ21AG | 24300 | mg/kg | 108 | 402 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| FIELD DUPLICATE #4 | C0D020489 027 | LXGQ41AG | 17400 | mg/kg | 101 | 378 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A1-47 (0-6) | C0D020489 028 | LXGQ51AG | 13700 | mg/kg | 103 | 384 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A1-46 (0-6) | C0D020489 030 | LXGQ81AG | 23600 | mg/kg | 111 | 415 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A1-48 (0-6) | C0D020489 031 | LXGQ91AG | 9500 | mg/kg | 87.2 | 325 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A3-20 (0-6) | C0D020489 034 | LXGRD1AG | 28200 | mg/kg | 118 | 441 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| FIELD DUPLICATE #5 | C0D020489 035 | LXGRF1AG | 34900 | mg/kg | 124 | 461 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A3-18 (0-6) | C0D020489 036 | LXGRG1AG | 5470 | mg/kg | 91.1 | 340 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A3-19 (0-6) | C0D020489 037 | LXGRH1AG | 16400 | mg/kg | 107 | 399 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A3-23 (0-6) | C0D020489 038 | LXGRK1AG | 26200 | mg/kg | 108 | 402 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |

# Carbondale, Illinois

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**Lab Name:** TESTAMERICA PITTSBURGH **Method:** MSA WALKLEY-B

**Client Name:** ARCADIS U.S., Inc. **Lot Number:** C0D020489

**Matrix:** SOLID

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A3-22 (0-6) | C0D020489 039 | LXGRM1AG | 64700 | mg/kg | 164 | 614 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A3-21 (0-6) | C0D020489 040 | LXGRN1AG | 41000 | mg/kg | 105 | 391 | 1 | 4/7/2010 - 4/7/2010 12:35 | 0097268 |
| A3-24 (0-6) | C0D020489 041 | LXGRP1AG | 45800 | mg/kg | 129 | 482 | 1 | 4/7/2010 - 4/7/2010 13:40 | 0097269 |
| A6-1 (0-6) | C0D020489 042 | LXGRQ1AT | 24900 | mg/kg | 114 | 426 | 1 | 4/7/2010 - 4/7/2010 13:40 | 0097269 |
| A6-2 (0-6) | C0D020489 043 | LXGRV1AG | 15300 | mg/kg | 102 | 382 | 1 | 4/7/2010 - 4/7/2010 13:40 | 0097269 |
| A6-3 (0-6) | C0D020489 044 | LXGRX1AG | 20300 | mg/kg | 115 | 430 | 1 | 4/7/2010 - 4/7/2010 13:40 | 0097269 |
| A6-5 (0-6) | C0D020489 046 | LXGR21AG | 13300 | mg/kg | 99.6 | 372 | 1 | 4/7/2010 - 4/7/2010 13:40 | 0097269 |
| A4-7 (0-6) | C0D020489 047 | LXGR31AG | 13900 | mg/kg | 103 | 386 | 1 | 4/7/2010 - 4/7/2010 13:40 | 0097269 |
| A6-6 (0-6) | C0D020489 052 | LXGTA1AG | 12800 | mg/kg | 113 | 420 | 1 | 4/7/2010 - 4/7/2010 13:40 | 0097269 |
| A4-6 (0-6) | C0D020489 056 | LXGTJ1AG | 83300 | mg/kg | 573 | 2140 | 4.55 | 4/7/2010 - 4/7/2010 13:40 | 0097269 |
| A4-4 (0-6) | C0D020489 057 | LXGTK1AG | 34100 | mg/kg | 129 | 483 | 1 | 4/7/2010 - 4/7/2010 13:40 | 0097269 |
| A4-1 (0-6) | C0D020489 058 | LXGTL1AG | 15400 | mg/kg | 99.9 | 373 | 1 | 4/7/2010 - 4/7/2010 13:40 | 0097269 |

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## *TOC*

**Lab Name:** TESTAMERICA PITTSBURGH
**Client Name:** ARCADIS U.S., Inc.
**Matrix:** WATER

**Method:** SW846 9060
**Lot Number:** C0D020489

### Total Organic Carbon

| Client Sample ID | Sample Number | Workorder | Result | Units | Method Detection Limit | Reporting Limit | Dilution Factor | Prep Date - Analysis Date/Time | QC Batch |
|---|---|---|---|---|---|---|---|---|---|
| RB032910 | C0D020489 002 | LXGPW1AF | ND | mg/L | 0.19 | 1.0 | 1 | 4/8/2010 - 4/8/2010 18:28 | 0098269 |
| RB033010 | C0D020489 032 | LXGRA1AF | ND | mg/L | 0.19 | 1.0 | 1 | 4/8/2010 - 4/8/2010 18:36 | 0098269 |
| RB033110 | C0D020489 033 | LXGRC1AF | ND | mg/L | 0.19 | 1.0 | 1 | 4/8/2010 - 4/8/2010 18:44 | 0098269 |